

TESTING THE 160-MPH BOCAR!

Motor Trend

"THE AUTOMOTIVE TESTING MAGAZINE" JUNE 1959 35c



TECH 9614
BLOWN
71 -HP
EVY
28

CARBURETORS — Add a Few, Get MORE GO!

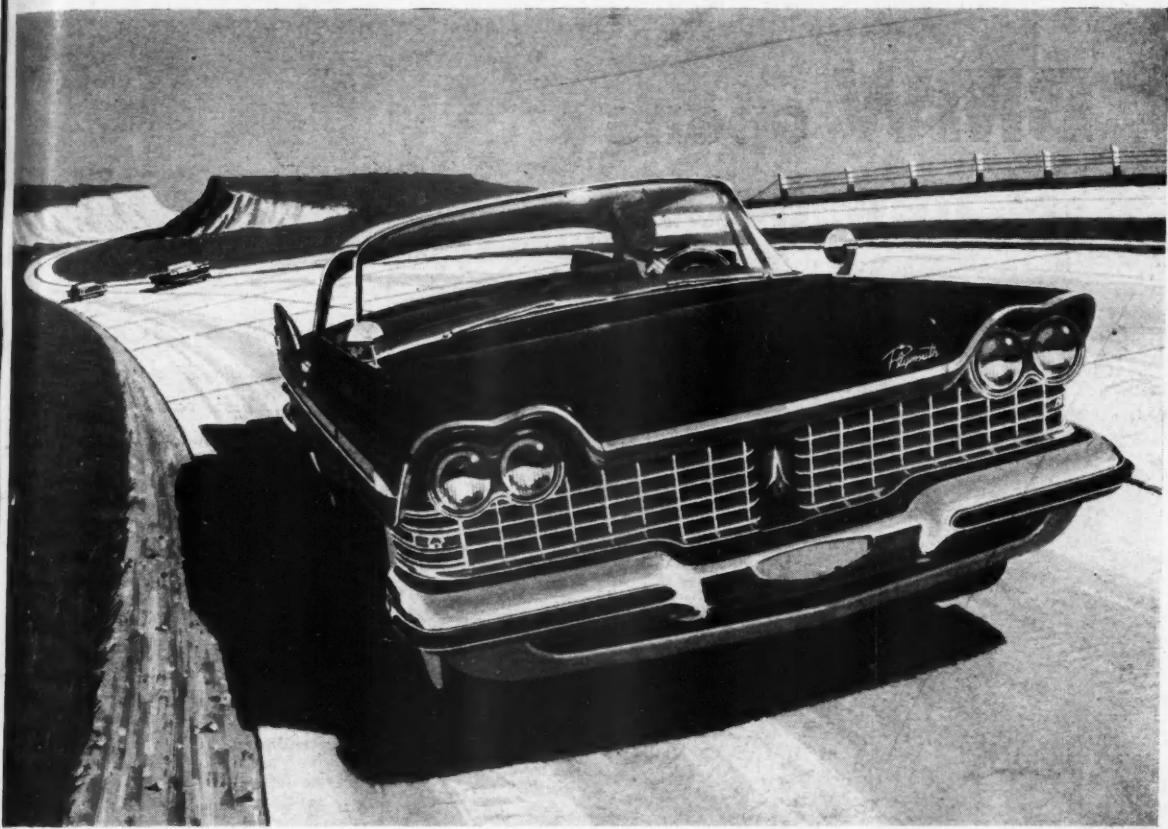


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You enjoy all the taste of fine, golden-rich
tobacco . . . the taste that's made **Lucky**
Strike famous. Get the genuine article . . .



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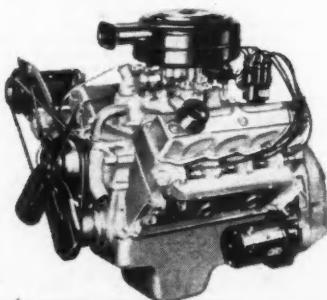


ONLY THE '59 PLYMOUTH GIVES YOU SPORTS CAR HANDLING, PROVED ECONOMY—AND PERFORMANCE, TOO!

You don't have to take our word for it! The experts—impartial automotive writers and editors—agree that in the low-price field, there's no car that handles like the '59 Plymouth! As MOTOR LIFE puts it: "...Great handling car.... May even surpass some sports cars."

Don't take our word for Plymouth's economy, either. It has been thoroughly documented in tough competitions. Today's standard Plymouth V-8s save extra gas with new Fuel-Saver Choke plus new 3-stage carburetor.

As for Plymouth's *ride*, it's Torsion-Aire, yours at no extra cost. There's nothing to compare with it in the low-price field . . . for smoothness, for minimum of sway or roll, for level-keel cornering, for freedom from dive on stops. And Plymouth's extra roominess inside assures you of the sort of *comfort* you've never before associated with low-price cars! Why don't you ask your Plymouth dealer for the Two-Mile Try-Out that will prove to you what a big difference Plymouth's great engineering makes!

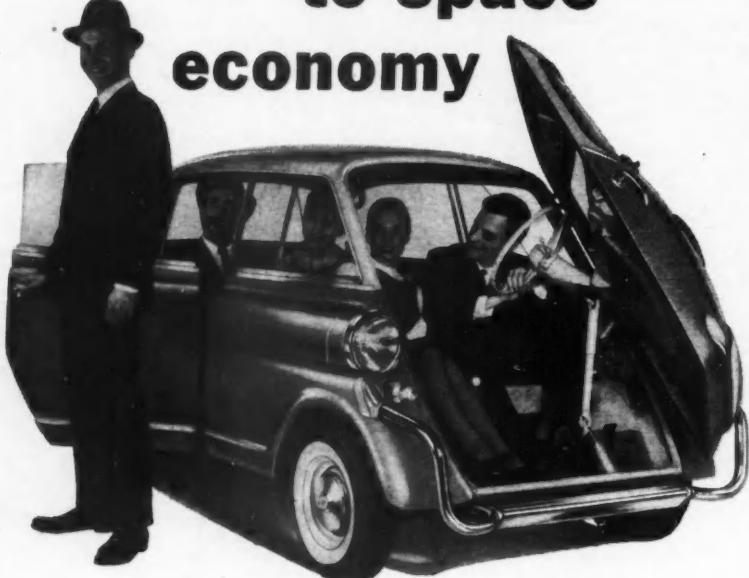


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This is the biggest standard V-8 in the low-price field. A *repeat winner* in its class in the Mobilgas Economy Run, which is the only recognized competitive test for economy in America today. The Fury V-800 has a 318-cubic-inch displacement. Also available at small cost: 305-hp New Golden Commando 395, biggest V-8 in the field.

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today's best buy, tomorrow's best trade

BMW opens new doors to space economy



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BMW MODELS FROM \$1048 TO \$11,900 F.O.B. N.Y.

COVER STORY
Corvette engine by
DODGE, by Performance
Associates
Engineering of beauty
as well as power, in
an engine rated at 175 hp.
2,000 rpm. For its
performance, as well as
its styling, we called in Eddie Lanza,
who did the Corvette seen
page 28. **Ektachrome**
photo by Bob D'Olivo



Motor Trend

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Motor Trend, U.S. copyright 1959 by Petersen Publishing Co., 5959 Hollywood Blvd., Los Angeles 28, Phone Hollywood 2-3261. Second-class postage paid at Los Angeles, California, and at additional mailing offices. Published monthly.

Subscription Rate: \$3.50 per year; 2 years \$6.00. Above rates for U.S., its possessions, Canada; all other countries: one year—\$4.50; 2 years—\$8.00. Single copy 35c. On sale at newsstands throughout the country.

Change of Address: Three weeks' notice is required. When requesting a change, please name magazine and either furnish an address imprint from a recent issue, or state exactly how label is addressed. Change cannot be made without the old as well as the new address.

Advertising: Los Angeles office—5959 Hollywood Blvd., Los Angeles 28. Detroit office—738 Book Bldg., Detroit 26, Phone WOodward 3-8245. Chicago office—360 N. Michigan Ave., Chicago 1, Phone FRanklin 2-6067. Cleveland office—834 Schofield Bldg., Cleveland 15, Phone MAin 1-1139. Eastern office—17 E. 48th St., New York 17, Phone PLaza 1-6690. Closes 25th of 3rd month preceding publication. (See SRDS.)

Contributions: Should be mailed to 5959 Hollywood Blvd., Los Angeles 28. They must be accompanied by return postage and we assume no responsibility for loss or damage thereto. Any material accepted is subject to such revision as is necessary in our sole discretion to meet the requirements of this publication.

Printed in U.S.A. by Pacific Press Inc., Los Angeles.

Member Audit Bureau of Circulation

Motor Trend

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- Getting More Go with Fuel Injection

SAM HANKS, 1957 Indianapolis Winner, says:

"I'd like a NATIONAL SCHOOLS trained mechanic on my crew ... any employer would!"

Sam Hanks holds American Closed Course record (102.5 M.P.H.); also many state and national racing titles.



MASTER ALL ENGINES
AT HOME IN YOUR SPARE TIME
NATIONAL SCHOOLS
AUTO MECHANICS & DIESEL COURSE
INCLUDING FUEL INJECTION

"I've worked alongside National Schools-trained mechanics," reports Sam Hanks. "They're tops, because they get all-around training, and they know how to repair fast and right the first time. No wonder National Schools graduates command top pay."

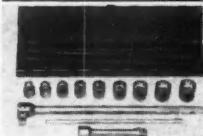
YOU GET AND KEEP ALL THIS EQUIPMENT



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"Motor Analyzing Set" contains Standard Engine Vacuum Pump Tester, Remote Starter Switch, Standard Timing Light, Standard Compression Tester. Plus compact carrying case & instructions.



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ADDRESS _____
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 Check if interested ONLY in Resident School Training at Los Angeles
VETERANS Give date of discharge _____

No, Virginia, the Simca doesn't run on rails



True enough, Motor Life did say that SIMCA "sticks to the road as if it were on tracks." But that's only an expression. Speed Age said it differently, with, "SIMCA's fantastic road-holding ability is second to none." You see, dear, SIMCA's ride is unusually stable, due to its understeering tendency. (That's partially due to the front-mounted engine design.) But especially because SIMCA does not have a rear-mounted engine, the car does not have to use a high pivot rear swing axle. And any engineer knows that cars with rear-mounted engines often do use high pivot swing axles in the rear. What's the difference? Cars with those axles tend to develop a "jacking action" whilst cornering, and that can be very dangerous. Jolting, in fact.

See the famous 5-place models, and the new 6-passenger SIMCAs, called Ariane and Vedette. All quite lovely. As for parts and service, the giant resources of Chrysler Corporation are available.

See your SIMCA dealer. Test drive the great new 4-door family size SIMCA sedan right soon. See what they're all talking about these days. And have one for your very own.

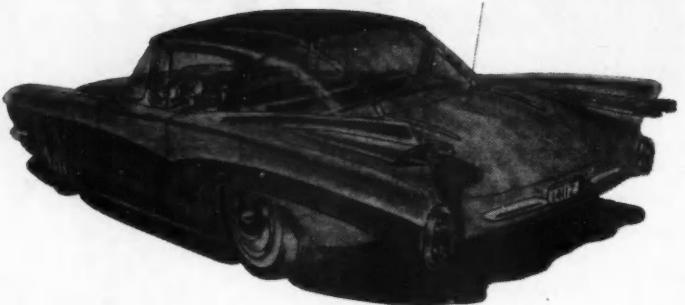


SIMCA

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SIMCA SALES OFFICE
CHRYSLER MOTORS CORPORATION
DETROIT 31, MICHIGAN
ALSO IN CANADA

Letters | FROM OUR READERS



DESIGN FOR A SPORTS COUPE

Gentlemen:

This is my design for a five-passenger sports coupe, approximately the size of a Studebaker Hawk, with a 113-inch wheelbase. The body would be fiberglass, reinforced with chrome moly tubing, and it would have an integral chrome moly roll bar built into the top. For the powerplant I would pick a late-model Chevrolet V8.

Allen J. Brewster Jr. Albuquerque, N.M.

HOW COME?

Dear Sirs:

We read a report in a recent issue of MOTOR TREND that a product you tested was not satisfactory. Enclosed is a page of advertising from a national magazine which shows that the product you tested was approved by Underwriters' Laboratories. How can the product be bad if Underwriters' approves it? James A. Lillie Acton, Ont., Canada Underwriters' Laboratories are not concerned with whether a product works or not. They test only for safety, and the UL seal means that the product will not burn, explode, or short-circuit and burn down your house.—Ed.

THE FINAL SQUEEZE?

Gentlemen:

My compliments to Roger Williams of Charleroi, Pa., for his letter in the April issue.

It's pretty frustrating to see the Big Three applying what might at any time prove to be the final squeeze to the last of the independents. As Mr. Williams observes, why must they crowd into what appears to be the only area of the market which offers any hope of survival to American Motors and Studebaker-Packard?

Robert H. Dunlap Lynchburg, Va.

SWING LOW, SWEET CHARIOT!

Dear Sir:

It requires no great prophetic powers to foresee that the designers' craze for lower cars, if continued, will prolong or even increase the slump in automobile sales. Road clearances are positively impractical even in our cities and our boulevards, to say nothing of country driving. Many of our low cars, at capacity loads, drag exhaust pipes and gasoline tanks on the road surfaces when the rear wheels drop into the slight dips so often present at street intersections.

I am only five feet 10 inches tall, but frankly, I don't know what new car I can buy that will be comfortable for the use I give a car. I believe that hundreds of thousands of other prospective buyers have discovered the same thing.

Richard M. Wyman Framingham, Mass.

Gentlemen:

We wonder, after such a disastrous year as 1958, why Detroit doesn't see the light and make cars practical for service instead of just pleasing to the eye.

Most of the new cars are too low to be driven on high-center dirt roads. Rocks fly up and break oil lines and crankcases even on pavements. The one sure thing that stops any of the low cars is snowstorms, when snow balls up under the car very quickly. Digging out is only temporary relief since the same

thing will happen again after a short drive. It's surprising how many people are looking for good used cars that have more clearance.

A. W. Hanna Fallon, Nev.

Dear Sir:

Why is it that an industry that is supposed to be trying hard to up its sales insists on building cars that are downright uncomfortable for at least a third of the people? In fact, people who aren't over five feet six complain about the low tops.

Good design should be functional first of all. That means that people of average height should be able to sit in any seat in the car comfortably on an all-day drive.

I suggest that each auto manufacturer put at least one six-footer in every department of his design section and listen to him.

Irving Hansen Omaha, Neb.

Dear Sir:

I am wondering when some car manufacturer will again build a car for the two or three million of us who do not like to sit on the floor to drive. Personally, I do not expect to buy any new car until they bring the seats up high enough for comfort and good vision—even if I have to drive my 1954 Lincoln Capri another 20 years.

J. J. Miller Moscow, Ida.

DOBLE D...
Dear Sir...
Your April issue...
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DOBLE DATA

Dear Sir:

Your article, "Doble Steamer," in the April issue is most interesting, particularly to me. Your statement that the five-passenger touring body was believed to have been built at Walter M. Murphy's of Pasadena I think is wholly correct.

However, as you no doubt know, the roadster pictured was made by Murphy and designed by myself. The cowl, doors and windshield were retained from the five-passenger touring, which was the original body. The fenders were duplicates off the same forms from the all-aluminum Peerless. I think we used Hupmobile tail lights, and I believe the bumpers were Cadillac. The car was originally painted in one of the Duesenberg Beverly sedan reds, known as Capucine No. 2.

Franklin Q. Hershey Oakland, Calif.

UNFAIR COMPARISON

Dear Sir:

I must voice a protest against the rather improper comparison you made between the Porsche and the Corvette (April MT). Your basis of comparison was, of course, price—but you got off on the wrong foot when you attempted to compare a Corvette priced at \$4859 (fuel injection cost included) and a Porsche at \$3745. This is a difference of \$1114! Surely you could come closer to that if price was the basis of comparison by testing a Porsche Super D (88 hp). Now if you gave the Porsche a \$1114 price edge, you'd have a Carrera on your hands. At any rate, the comparison in performance would be much more objective with either the Super D or the Carrera.

If I were a German in Germany, I'd buy a Porsche. If I were an American in Germany, I'd buy a Porsche. If I were a German in America, I'd buy a Porsche. And if I were an American in America (which I proudly am), I'd still buy a Porsche (which I proudly have).

Dr. Donald L. Petersen Hagerstown, Md.

BIGGEST CAR, BIGGEST BARGAIN?

Gentlemen:

I cannot dispute the literal truth of the statement by Mr. L. A. Brown in the March issue that American cars give "so much more," for surely they are longer, wider, heavier and clumsier than all others. But alas, the biggest car may not be the biggest bargain, although many sales are being made on that theory.

William W. Allen Rochester, N. Y.

LOST—BEAUTY AND SIMPLICITY

Dear Sir:

The Big Three tell you how nice and low their cars are, but they don't tell you that you must take off your hat and sit down before you get in. They tell you about the swing-out seats, but they don't tell you that if the cars were built sensibly you wouldn't need extra-cost swing-out seats. They tell you how big the trunk is, but they don't tell you that there is no room for your legs in the rear seats even with the floor wells. They tell you how beautiful their fins are, but they don't tell you what a foolish, useless waste they are.

They tell you about the six to eight lights on the front of some of the cars, but they don't tell you why they put them there and that you need extra-cost 12-volt electrical systems to power all that jazz and that it costs more when you buy and more when you service.

The last American cars built for beauty and simplicity were the '55s and '56s.

J. H. Clinard Woodside, N. Y.



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Driving Around

WITH THE EDITOR



Headgear used on trip from Denver to Los Angeles in the Bocar sportscar was a combination of the Bell helmet and Protector tinted goggles (far left), and helmet plus face shield (left). They cut down on the cold, raw wind that whipped over and around the tiny windshield.

IT'S FAIRLY EVIDENT that this month's cover looks different from those we've had in the past, but just in case you really didn't notice it, take another look so you'll recognize it on the newsstand next month. This month's Ektachrome shot by Bob D'Olivo of the blown engine is just about one of the greatest of its kind we've ever seen. Incidentally, the engine is pretty great, too. You can read all about what it did for a stock street Corvette on page 28. It's a real screamer!

You may have also noticed a few words under the title of MOTOR TREND: "The Automotive Testing Magazine." We've been this for a long time, but with this and future issues we'll be putting the emphasis on it even more. We almost used a line of, "We'll Test Anything," but thought better of it when we realized there *may be* a few types of vehicles and products we couldn't test.

Anyway, you'll be seeing more and more car tests (all kinds). In a very frank style we'll tell you the purpose of each car, whether we think it's worth the price, how it performs, handles and rides. There'll be no doubt in your mind how we feel about the car when you're through reading the report.

* * *

DRIVING THIS MONTH has been extremely interesting because I've travelled around quite a bit: Detroit, New York, Chicago, Denver, back to Los Angeles. In Detroit I drove several cars (though the only one I can mention at this time is the Chrysler 300-E). In New York I drove both the Moretti (reported to you last month by New York Editor DaCosta) and Chrysler's Simca Beaulieu V8. Now there's a car; wonder why Chrysler doesn't make it their small car? It has the style, the size, the power, the comfort, the economy. Why

would they want to look any further?

And yet they are, for according to L. L. Colbert, Chrysler Pres., "We have been working on the type of car the American public seems to want: 105-110-in. wheelbase, six cylinders, comfortable, easy to drive." Their problem seems to be: Will the prospective purchaser buy a slightly smaller, less powerful and more economical car instead of a regular-sized Plymouth, especially when it's only about \$150 less? Seems the answer is obvious and that the course is clear, but chances are they'll have to follow the lead of General Motors and Ford.

* * *

NEXT CAME THE BOCAR, on which you'll find a full test report by turning to page 34. I picked up this top-less, heater-less, practically windshield-less sportscar in the mile-high city of Denver. Then I drove it through freezing weather for 1303 miles to Los Angeles (averaging, incidentally, from 19.6 to 20.6 mpg). And that's something I'm not ready to try again until summer is here in all of its blazing glory.

When I got to Denver the car was far from ready to drive. The accompanying photo shows the entire crew working on the car the morning after I was to originally leave; they had been working steadily day and night to get it into the best possible shape. What hard workers!

Because of the forecast of heavy snows and temperatures below freezing, Bob Carnes had his tow-bar specialist, Steve Zorichak, tow the Bocar up over 7800-foot Raton Pass to get me down into warmer country. Well, at least it seemed warmer. As it was I made only a slow 125 miles that afternoon before I turned into a block of ice. I know one thing: on that day (and the next one) I could have driven 14-18 hours in absolute comfort, except for the cold; it's a comfortable and untiring car to drive. Its punch and power (it pushes you back into the seat at 80 mph in 4th gear!), its directional control and handling ability make



Scene at Bocar Mfg. the morning of departure was organized chaos. Not only did Bob Carnes (far right), designer-owner of the company, take an active part in preparing the car, but final adjustments were made by everyone.

this probably the best semi-production car in the country.

* * *

WITHOUT THE BELL 500 HELMET and face shield (which I wore on the Denver-LA trip at various intervals) I would have had frostbitten nose and ears. (The Boar's windshield is only four inches high and is not a windbreak.) The helmet was comfortable to wear for miles on end, while the face shield gave good protection and allowed full vision. I just wished I'd had a mask for my mouth and chin. My one objection to the combination of helmet and shield is one I unearthed later: the helmet has a tendency to lift, or float, at speeds over 100 mph. I suppose the only thing that would have happened, though, is that the shield would have unsnapped.

* * *

LATER ON THE SAME TRIP I tried two sets (clear and green) of the new Protector goggles. Looking at the way each eyepiece is made—in two flat sections set at angles to each other—you'd think the vertical joining line would impair vision. Instead what it does is to give extra-wide vision, completely undistorted. The foam rubber pads and adjustable bridge made the goggles comfortable to wear for long periods of time. And when I wasn't using them I could put them in their aluminum case. They're a real buy at \$14.95, with more economical versions at \$11.95 and \$7.95. Available from the importer, Buttafari Corp., 452 Fifth Ave., New York 18.

* * *

IN DRIVING MANY DIFFERENT types, shapes and sizes of cars we are becoming increasingly aware of the fact that many of today's cars are much too large for what they give you in terms of passenger space, handling, economy and performance.

Did you know, for example, that the Thunderbird has more headroom (front and rear) than the 20-inch-longer Cadillac 62? That the Rambler has slightly more headroom (front and rear) than the 46-inch-longer DeSoto Fireflite? And that the Studebaker Lark has about the same hiproom (front and rear) as the 7.6-inch-wide Ford?

Quite surprising, isn't it, to realize that all that extra bulk doesn't give you any more passenger space? So what's it for?

Managing Editor Erv Rosen put it quite succinctly when he said, "The size-and-glitter thrill that has been obtained from current cars is rapidly wearing off and the American public is about to discover a new thrill of realizing that it's smart to be practical. . . . It's time for MOTOR TREND to acknowledge the practical merit of smaller cars, and to express the hope that Detroit designers will also recognize it—and apply it to their thinking."

Karl Rosen

NEW

ignition analyzer kit

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of comparable analyzers



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- locates ignition trouble
- shows adjustments necessary for peak performance

Here is a professional type ignition analyzer in "do-it-yourself" kit form to make your engine service and adjustment work easier. You can do a better job—and do it faster, with this new service tool. Quickly connects to engine to show complete wave cycle of ignition system and reveal troubles in plugs, coil, distributor, condenser, points, timing, etc. Comparable to units selling for more than twice the price. No electronic experience required for successful construction. Kit includes all parts, step-by-step instructions, and large pictorial diagrams. Send for details—or order your ignition analyzer now!

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and many other
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1959 MOBILGAS ECONOMY RUN TESTS MILEAGE OF ALL U.S. CARS

*"I Saw Gasoline History
Made" . . . Jim Bryan*

JIM BRYAN, winner of the 1958 Indianapolis "500" and performance steward of the 1959 Mobilgas Economy Run, saw gasoline history in the making.



KANSAS CITY, Mo., April 9—Just four hours ago, 47 men and women, drivers in the 1959 Mobilgas Economy Run, wearily crossed the finish line in front of the Muehlebach Hotel. They were dog-tired after 4½ days and 1899 miles of some of the toughest driving I've ever seen.

Powered by Mobilgas Special, stock cars representing every U.S. make started from Los Angeles' Civic Center at dawn on April 5. First across the blistering desert, then up, up to 11,988 feet and over the jagged spine of the Rockies, then over the prairies. And by the end of the Run they had bucked 342 miles of traffic in 147 towns and cities. Deserts, mountains, prairies and cities—running at maximum legal speeds all the time!

One of the drivers summed it up for me: "Toughest, most demanding grind I've ever been through. But when I needed it, Mobilgas Special came through with plenty of smooth, knock-free power. And it came through with plenty of economy, too!"

Official Results 1959 Mobilgas Economy Run

COMPETITIVE CLASS

| OFFICIAL WINNER | MILES PER GALLON |
|-------------------------|------------------|
| Rambler American Deluxe | 25.2 |
| Chevrolet Biscayne | 22.3 |
| Plymouth Belvedere | 21.1 |
| Dodge Coronet | 21.7 |
| Ford Thunderbird | 19.1 |
| Cadillac Sixty-Two | 19.0 |

Average of all cars entered 19.4 m.p.g.

BEST MILEAGE BY MAKE

| | | | | | |
|---------------|------|-----------|------|--------------|------|
| Buick | 18.8 | Edsel "6" | 19.6 | Oldsmobile | 18.1 |
| Cadillac | 19.0 | Edsel "8" | 17.8 | Plymouth "8" | 21.1 |
| Chevrolet "6" | 22.3 | Ford "6" | 20.3 | Pontiac | 18.8 |
| Chevrolet "8" | 19.2 | Ford "8" | 19.6 | Rambler | 25.2 |
| Chrysler | 19.6 | Imperial | 18.2 | Studebaker | 22.4 |
| De Soto | 19.0 | Lincoln | 17.2 | Thunderbird | 19.1 |
| Dodge | 21.7 | Mercury | 18.9 | | |

2-2440

Route of 1959 Mobilgas Economy Run



The Mobilgas Economy Run—an official test of cars competing with others in the same price class—sponsored annually by General Petroleum, far-west affiliate of Socony Mobil, as a public service to motorists. Throughout the entire Run, car drivers and gasoline are carefully supervised by United States Auto Club officials.

by Bill Callahan
Detroit Editor

SMALL CAR PROGRAMS PROCEEDING APACE
Despite rather fudging statements by major producers (indicating small car programs may be called off) an automated engine line has been set up at Flint to produce engines with cranks 10 inches shorter than present Buick engines have. For what else but small car engines for small cars?

WHAT'S WITH THE BUICK-OLDS-PONTIAC SMALL CAR?

Buick apparently got the nod to produce all engines for the rumored B-O-P small car. Reasoning is probably that it wouldn't make sense to set up separate engine lines at Olds and Pontiac, too. Report is that smaller Buick will be slightly larger than Opel, assembled in Buick plant at Flint. Best information is that Pontiac will not handle smaller car in 1960; that it was told to get along with its Vauxhall imports. As for Olds, there's some question; a new warehouse in Lansing, possibly for assembly of the car, is said to be for storage only. Many feel B-O-P small car will be held for fall 1960, but activity at Buick seems to indicate earlier date.

MORE STRAWS IN THE WIND

Seeming to put the definite stamp on a smaller Chevy is fact of first pilot run oil filters by AC Spark Plug Div. of GM at Flint. Run consisted of 197 filters of 3-in. diameter and 3-in. height. Evidence that Willow Run (former Kaiser plant and more recently Hydra-Matic transmission plant) may be home base for smaller Chevy truck frame plant is fact that 74,000 sq. ft. of space have been added to Chevy truck plant in Flint.

COLOR FLUORESCENT LIGHTING

AC is working on a color fluorescent lighting system for Cadillac interiors for 1960. Idea is to provide soft light in color tones to blend with upholstery. Was planned for later, but could have been moved forward because of breakthrough with alternating current generator needed for system.

RADIO WARNING SYSTEM

A new audio highway signaling system has been announced by GM. It consists of a small, low-frequency transistorized transmitter, with self-contained power supply. It will

continually repeat messages recorded into it, interrupting car radio reception or turning on car radios properly equipped. This would allow police to drop small transmitter near the scene of an emergency, to warn approaching vehicles. No price or availability announced as yet.

NEW GAS TURBINE FROM FORD

The Ford Motor Co., very evasive recently about discussing gas turbine engines, suddenly did a complete about-face and announced a small, light, 300-hp gas turbine known as the Ford 704. Currently in the hands of the Department of Defense, the 704 weighs one-fourth that of a truck diesel of comparable horsepower and rivals conventional piston engines in fuel consumption. According to Ford, the engine would fit in 1959 pleasure cars with room to spare. Testing in such vehicles will begin before year's end.

MORE STATIC ON ELECTRIC CARS

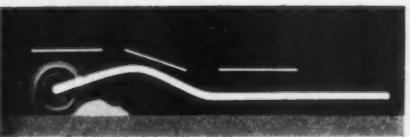
Electric cars for the future is more and more intriguing. American Motors' George Romney and Irving Schachtel, Sonotone Corp. of Elmsford, N. Y., are collaborating on a long-range program aimed at developing a lightweight, sintered-plate nickel-cadmium battery. It would be kept in constant charge by a lightweight generator operated by a small high-performance engine. This setup, it is felt, would eliminate the chief drawback to electric cars: the need for recharging batteries every 100 miles or less. Current batteries which provide electric energy to match performance of gasoline-powered cars would probably weigh over a ton. Sonotone has developed smaller versions of the sintered-plate, nickel-cadmium battery, proved highly efficient on missile work. Schachtel says batteries of this type can withstand great overloads or surges of power, and can be recharged in a fraction of the time required for conventional batteries. Both Romney and Schachtel emphasize that the present program is long range, which could mean several years of development.

CADILLAC FOR 1960

No drastic body changes contemplated, except for door openings extending into roof to make it easy to enter and leave the car.



Here's what happens with worn shocks. Wheel hits bump, then returns to road . . . but violent spring recoil pulls it off road a second time. Meanwhile car body (indicated by plane lines) rocks severely. This causes serious loss of control, shakes up passengers, takes miles off tires.



With new Gabriel Ajustomatic shock absorbers, wheel hits bump, returns to road . . . and stays there! Spring recoil is absorbed, entire car recovers from impact almost instantly. Besides increasing safety, comfort and tire mileage, this helps prevent spring breakage, actually lengthens car life!

Gabriel Ajustomatic shock absorbers give greater comfort and car control

If you've gone over 20,000 miles on your present shock absorbers, chances are you need new ones. Ask your service station attendant or garage mechanic to give your shocks the Gabriel safety check now . . . especially if you are planning a family trip soon. And if you do need new ones, tell the man you want Gabriel Ajustomatics, the modern shock absorbers that can be adjusted to give you the kind of ride you need, for the kind of driving you do!



GABRIEL WINS AT DAYTONA!



Lee Petty won the 500-mile stock car race at Daytona riding on Gabriels! Lee says: "It was a wonderful feeling riding on those Gabriel shocks.

They gave me perfect control, even on the curves. I wouldn't have any other shocks on my race car . . . or family car, either!"

Gabriel
ADJUSTABLE SHOCK ABSORBERS

THE GABRIEL COMPANY • Cleveland 15, Ohio

Why does CHRYSLER need a small car when they have the SIMCA VEDETTE?



You can't see it, but there's a '37-type Ford V8 "60" under that hood, modified to produce 84 bhp @ 4800 rpm. Gearbox is conventional-pattern 3-speed, familiar to American drivers.

THE SIMCA VEDETTE BEAULIEU is a family V8-engined sedan that shows a remarkable amount of influence in styling from its new foster parent, Chrysler Corp. This is not to say that it bears much physical resemblance to other Chrysler products, but this French import certainly looks unmistakably American. The new American influence in both styling and engineering—the latter reflected in its "soup-dish" ride and cornering capabilities—may prove a cause of concern to competitive domestic manufacturers, notably "The Little Two."

The name Beaulieu might be literally translated to mean "good, instead of"—which prompts the question in the title above. The car is powered by a V8 engine that will ring bells of nostalgia for '37 Ford owners. It's basically the same plant, boosted to 84 bhp, at 4800 rpm, by simple modification. Completing the Ford picture is a two-throat Zenith carburetor.

Combined city-country driving gave us a mean average of 27 mpg, which is good for a 2.3-liter car that weighs close to a ton and a half (2744 lbs. curb) and is not tested with economy in mind. Brakes are better than adequate, with 193.5 sq. in. of lining surface, and produced no fade after the usual number of stops from 60 to 0.

Steering is a trifle heavy, based on a worm-and-roller Gemmer design, but outside turning radius is good at 18 ft. 8 in., with slightly over three turns of the wheel lock-to-lock. The only real bother is that turn signal control is mounted directly on top of the column; to reach it one must poke his arm through the wheel.

There is considerable lean in fast corners, possibly due to the long stroke telescopic shocks and coil springs at front and semi-elliptic leaf springs, with similar shocks, at rear. A three-speed gearbox is employed, the

top two being synchromesh. Between these two gears the ratio is too close (second is 1.772 to 1) to gain much by shifting down for rapid acceleration. Conversely, first gear is widely separated, at 3.114 to 1, and here the only impression is of strength. The plastic, column-mounted lever operates hazardously with a long reach to second.

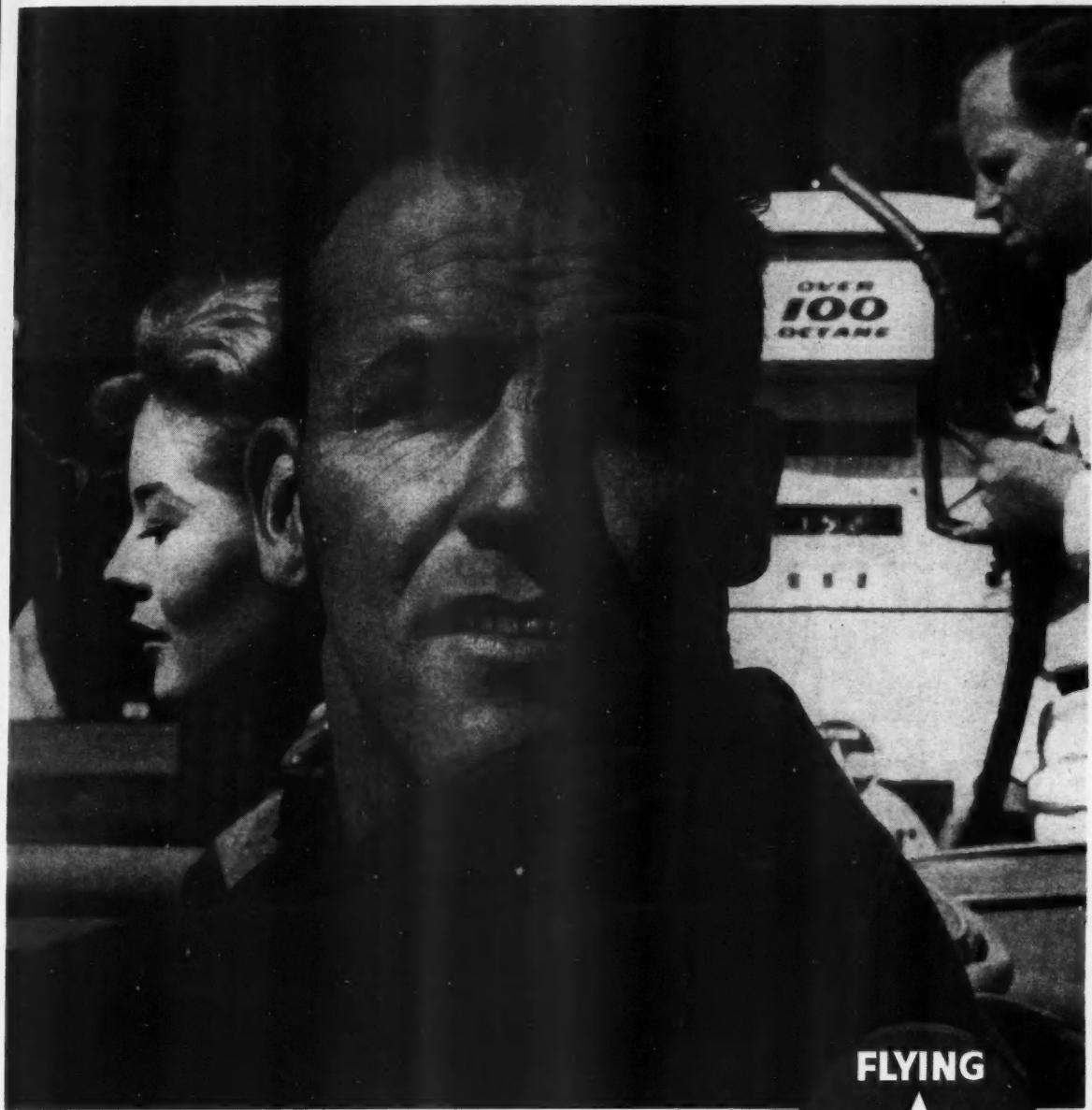
In the three days the car was at our disposal I found an increasing regard for the Vedette Beaulieu. Little fault can be seen in its overall appearance, and annoyances at characteristics outlined above soon faded. Weatherproofing and general construction, with the exception of the less-than-sturdy plastic accoutrements, are better than average for a low-priced import. Visibility is good, seating is excellent and comfortable for four adults, and luggage space in the trunk is large enough for another passenger. As top car in the line of five sedans produced, this \$2298 (p.o.e. New York) machine rates qualified approval.

—Steve DaCosta



Tail lights are suggestive of Dodge rear end arrangement of a few years ago. Fins are in the motif of contemporary American styling.

A man with drive

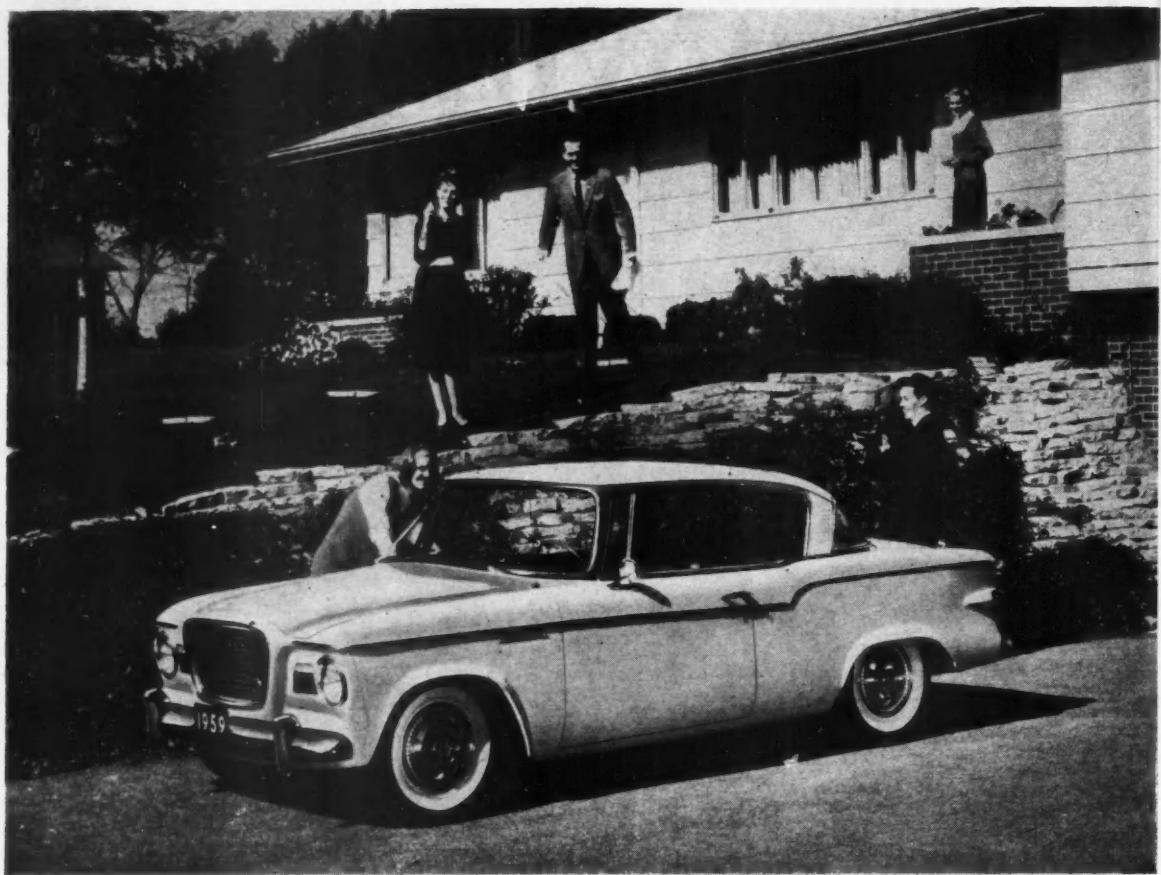


gets Flying A



There's more in it: (1) Highest octane for more power.
(2) The only gasoline over 100-octane that doesn't cost you extra.
(3) Clean burning—the cleanest ever refined! (4) Never a knock in any engine.

Reason: Flying A comes from the most modern refinery in the world.



RALLY ROUND THE LARK, MEN (and girls, too)

THE **LARK** BY STUDEBAKER

Here's the car that's fun to drive. It's The Lark by Studebaker! What makes The Lark so much fun? It combines the most desirable qualities of handling and maneuverability of Continental machines with the spacious 6-passenger interior typical of much larger U.S.A. automobiles. In brief, The Lark provides you with satisfaction at the wheel. Down under a short 108 inch wheelbase, variable rate coil springs surround front hydraulic shock absorbers; asymmetrically mounted semi-elliptical springs combine with outward-angled rear shocks. The result, teamed with a 175 inch overall length, provides good cornering and a smooth, but firm, ride. It cuts acceleration "squat," too! Ideal for gasoline stretchers, the 170 cu. in. "6," with improved induction and manifolding, is great for winning top money economy awards. For higher performance, the 259 cu. in. V-8 with 4 barrel carburetor and dual exhausts is ideal. It *really moves!*

Why don't you "move" to your local Studebaker dealer today and test drive The Lark? It's your new dimension in motoring.

Overseas

NEWS REPORTS

GERMANY

The Porsche factory has entered the marine engine field with a complete package built around their 90.6-cu.-in. sportscar engine. Engine is the same, but carburetion, oil-cooling, air-ducting and muffling had to be modified....Lloyd is preparing a completely new design, a 900cc to be introduced before the Frankfort show. It has been likened to the Renault Dauphine....Speaking of Frankfort, we just discovered that every fourth Frankforter is fined once a year for traffic violation....A microbus-like Viking-Rapid, powered by BMC's 32-hp A-35 engine is being made in semi-commercial and "Sportsman" models....

JAPAN

A newly-designed opposed-four engine offers a different design concept. A single aluminum casting forms the crankcase and cylinder jackets, while valve tappets are made of plastic. This construction absorbs tappet shock as valves are opened. It powers a three-wheeled truck....

FRANCE

Pont-A-Mousson have developed a four-speed all-synchromesh gearbox called the Comete for expensive production cars and racers. Handmade, tolerances are extremely fine for effortless shifting and quiet operation. It is now being used in the Facel-Vega....The Peugeot 403 is now available as a five-door station wagon. The back door swings open to load....

ITALY

The new Fiat 2100 can be ordered as a four-door station wagon....With the cancellation of the Monza 500, Mr. Zanetti, of the Eldorado Ice Cream Co. (Stirling Moss' white ice cream wagon last year), is looking for someone to sponsor his car at the Indianapolis 500. The car has been at the Maserati factory, being fitted with a 4.2-liter Bosch-injected engine....The Sestriere Rally, 1800 miles of winding North Italian roads, was won first-overall by a 750cc Fiat/Abarth. BMC cars took the team prize....One correspondent reports seeing a 1500cc block at the Ferrari plant. Enzo has never said he wouldn't build to the new formula....

NASSAU

To insure the continued success of Nassau Speed Week, the race budget has been upped to nearly \$100,000. A

sizable portion of this will be to insure each entrant a good portion of his expenses, plus purse money....

SWITZERLAND

An amphibious jeep-like vehicle called the "Eurocar" was displayed at the Geneva Auto Show. It's equally at home on land or water....

AUSTRALIA

First place in the Australian Mobilgas Economy Run, 1070 miles through the hill and "bush" country, was taken by a Citroen DS-19. Average was 39.1 mpg....

EAST AFRICA

Talk about rallies! The East African Safari covers 3200 miles around Africa's highest mountains and hottest deserts. Standard equipment is mosquito netting, and the Rootes crews will wear specially prepared Dunlop driving kits, which weigh only 4½ oz. complete....

SPAIN

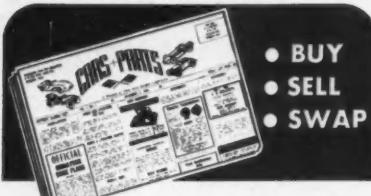
The Pegaso, Spain's entry in the world's high-speed sportscar market, is being improved by increasing engine size from 3.9 to 4.5 liters and widening the brake drums proportionately. With the supercharger option, top speed is reported at better than 170 mph....Also, Pegaso is planning to invade, in the near future, U.S. markets with a luxury five-seater sedan with automatic transmission, power steering and power brakes. It's nearly ready....

ENGLAND

An automatic transmission will be available as an extra on one of the popular 90-cu.-in. "economy" cars in the near future....Peerless are setting up distributorships in the U.S. for their four-passenger glass-bodied luxury sports sedan, based on Triumph TR-3 components....Metropolitan (distributed in U.S. by American Motors) will be available with removable hardtop, bigger tires, more comfortable appointments....

RUSSIA

Engineers at the Kharkov plant are working on small two- and four-cylinder air-cooled engines. Some of their design features include a Ricardo-type combustion chamber and an individual fan to cool each cylinder....



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Heralding the TRIUMPH HERALD



Herald sports coupe uses same basic body panels as sedan, but with longer rear deck and different roof. Fenders and hood raise with bumper center-section for service.

BREAKING AWAY FROM CURRENT small-car concepts, the new Triumph Herald offers a car stressing safety, handling ease, and minimum maintenance.

Designed by Michelotti, the 91.5-in.-wheelbase Herald conforms in its styling lines with the presently popular Italian vogue. In addition to the sports coupe shown above, a two-door four-seater sedan is offered, also featuring slim pillars and curved windshield.

The engine, inherited from the Standard Ten and Pennant, is a four-cylinder in-line ohv of 948cc (58 cu. in.), with single carburetor and 8 to 1 compression. Four-speed gearbox is synchromesh in top three. The sedan engine delivers 38 hp at 4500 rpm, with the manufacturer claiming 0-50 acceleration

time of 20 secs., maximum speed 68-70 mph, fuel consumption up to 42 mpg.

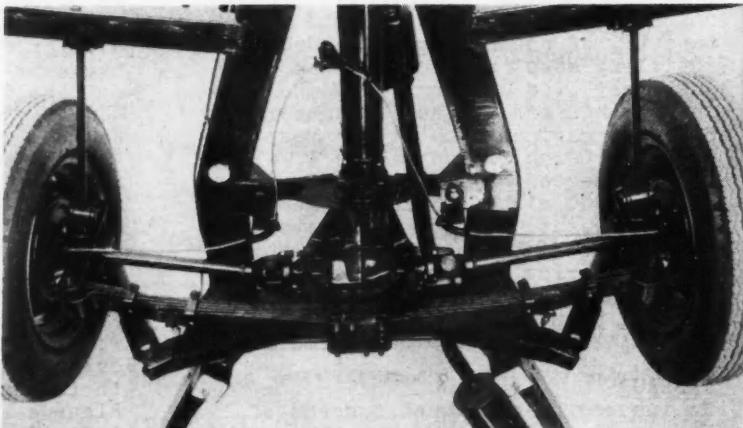
The sports coupe has an extra carburetor, compression ratio raised to 8.5, and a 50-hp rating. Top speed is upped to 80 mph.

The Herald features all-independent suspension, a claimed first for small British family cars. Adjustable driver's seat and adjustable steering wheel with dished center and collapsible column combine comfort with safety.

Steering and suspension pivots, driveshaft joints and other lubrication points need no greasing—they employ nylon bearings, or needle roller bearings with sealed lubricant.

Designed for large production at competitive prices, the Herald may soon be blowing its own horn.

—Gordon Wilkins



Rear suspension is swing axle arrangement with transverse leaf spring and torque arm at each side. Exhaust pipe passes through rear crossmember for more ground clearance.

GERMANY'S "WONDER CAR!"



DKW is, indeed, the "wonder car" of its field . . . as the owners and experts will happily tell you. Just try a few miles yourself. Discover the spirited response of its precision-engineered 2-cycle engine. Here's speed—stamina—and efficiency that's been proven by countless victories in the world's ruggedest rallies and races. Check the unsurpassed roadability of the front wheel drive . . . the trim continental styling . . . the family-sized roominess . . . the superbly-crafted details . . . the advanced safety features! Wide range of models, too—from sedans to hardtops. Modestly priced from \$1995 P.O.E., N. Y. Discover the **DKW!** Authorized dealers—parts and service—from coast to coast.

DKW AMERICAN, INC., 630 Fifth Ave., New York 20, N.Y.
For the "Quick Facts" about DKW write for free illustrated brochure.

The logo consists of the text "A PRODUCT OF" above a stylized "AU TO UNION" monogram. The monogram features the letters "AU TO UNION" in a bold, sans-serif font, enclosed within a circular border that has three horizontal bars on its left side.

REUPHOLSTER with a BRUSH!



Renew dull, faded, worn leather or vinyl plastic upholstery. Car, plane or boat seats, headliners, side-panels will look new in any color. Redesign, customize new or used interiors. You can change color too! Easily applied brush or spray. RamCote Flexible Finishes

(not a paint) impregnates leather or vinyl plastic upholstery. Won't chip or peel. Fadeproof, waterproof. Use on home & lawn furniture. Write for free information, color chart, and dealer location.

RAMCOTE, 1141 W. 69th St.
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RAMCOTE
FINISHES
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STOP BRAKE FAILURE . . . DOUBLE LIFE OF YOUR BRAKES!

Why risk your life? 31% of fatal accidents are caused by faulty brakes—and even brand new brakes can fade. Cop-Sil-Loy Brake Compound is guaranteed to stop brake fading when properly applied and will actually double the life of your brakes—new or used!

Cop-Sil-Loy disperses "flash" heat, assures greater braking efficiency, improves the contact between lining and drums, reduces drum flaking. Reduces wear. Water-proof lining to eliminate failure due to rain or flood. Stops frictional squeak. Torture tested on the highway and speedway. Motor Trend Research says, "Cop-Sil-Loy's advertising claims are not extravagant... it's the answer to improved brake performance." One application lasts the life of the linings and doubles lining life. Cost is small—you can do it yourself if you have it applied by your local serviceman in an hour. Complete Cop-Sil-Loy Kit—including brush, cleaning solvent and simple instructions only \$4.95, postage free. MONEY BACK GUARANTEE. Specify if for power or regular brakes.

COP-SIL-LOY Dept. 13
1581 Crossroads of the World
Hollywood 28, California

Please rush Cop-Sil-Loy Brake Treatment Kit on guarantee of satisfaction or money back. I enclose \$4.95. (In Calif. add 20c tax.)

For Power Regular brakes.

NAME _____

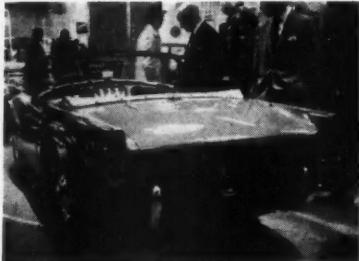
ADDRESS _____

CITY _____ ZONE _____ STATE _____

New Daimler "Dart"



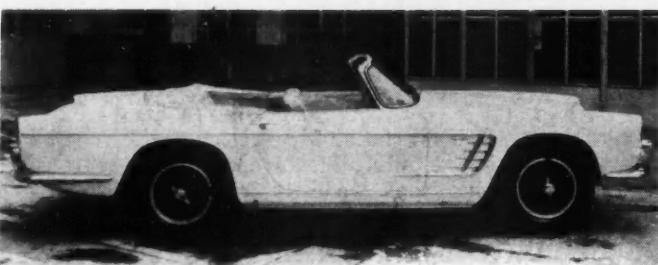
DAIMLER, Britain's oldest auto manufacturer, have entered the sportscar market by showing their new Dart model, a plastic-bodied two/three-seater with a 2.5-liter ohv V8 engine rated at 140 hp. A removable hardtop is offered and deliveries are planned for late '59. Only three production prototypes were built; the one at right was rushed to completion in time for display at the New York Show.



MASERATI 3500



Latest body for 3500cc Maserati convertible is by Frua of Turin. This new high-performance 6-cyl. sportscar may be ordered with disc brakes and wire wheels.







The measure of value for 1959 has already been set: room and comfort plus economy. Toyopet offers four-door entry convenience...the comfortable ride of a big car...and still, Toyopet is inexpensive to operate and maintain. This is value unattained in any other automobile...regardless of price.

WORLD'S GREATEST AUTOMOTIVE VALUE



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For more power, faster acceleration, and hotter spark at high speeds, install a dependable, trouble-free Vertex Magneto. Changeover is simple, no special cables or plugs required. Models available for most popular auto, bus, truck and marine engines. Shipped ready to install. Can be transferred from one motor to another.

Write RONCO for name of nearest Vertex Dealer. Send 25 cents for illustrated 20-page Vertex Handbook containing comparative performance charts.

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Paints a house to a toy! Saves its cost on first major job. Speedy Sprayer does in minutes what brushing takes hours. Finish is smooth, flawless. Uses any $\frac{1}{4}$ h.p. motor with $\frac{1}{2}$ " shaft. No. 780 Outfit—10 ft. air hose, tire chuck, quart gun, less motor, only \$32.00. Useful in every workshop. At leading stores.

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Rumors

TRUE
AND FALSE



"Pontiac in 1960 will give up the 'wide-eyed' look that distinguished their grille treatment this year."

POSSIBLE—According to usually accurate rumor sources, the headlights will be moved further inboard, with the dual lenses separated. Flat grille bars in the center will protrude slightly and be graduated in length, giving a mild "V" look to the front (see illustration above).

"Some GM lines will have aluminum front wheels with integral brake drums equipped with steel liners in 1960."

GOOD BET—Such wheels are now available and have better anti-fade characteristics than current steel wheels and brake drums. They also reduce unsprung weight. They undoubtedly will make their appearance in production models in 1960.

"Studebaker will revive the name Packard in its 1960 line."

DOUBTFUL—While Studebaker-Packard officials were very reluctant to drop this venerable name from the corporation lineup, more practical considerations would seem to dictate a policy of promoting its Lark series.

"An American engine manufacturer has developed a piston engine that will operate efficiently on all types of fuel—from kerosene to high-octane gasoline—without adjustment."

TRUE—Continental Motors in Muskegon, Mich., has developed an engine which it claims will do just that. Fuel is sprayed over the top of the piston (rather than mixed with air by the carburetor) and is spark ignited. The engine was developed for military use where its more or less universal appetite for fuel would have great advantage.

"Ford Motor Co. will come out with a small car, to be called the Edsel, and sold through Edsel dealers."

FALSE—Ford Motor Co. recently stated officially that the Edsel would be continued and designs had been practically completed for 1960 and 1961. Later Ben Mills, head of the Mercury-Edsel-Lincoln Division, added, "The Edsel will be a full-sized car." Rumors persist, however, that there will be a smaller Edsel and the term "full-size" is rather elastic. In view of the definite statements from Ford officials, we can only call the above rumors false, as of now.



"Is this the 1960 Plymouth?" asks the reader who sent in this photo.

PROBABLE—Though there had been considerable talk earlier that the 1960 Chrysler line would be radically changed, this photo shows the Plymouth with a continuation of the Exner style. Notable changes: a groove line from above the headlight to around the rear wheel opening; recessed door handles; slantback center post; different fin and tail light treatment.

NOW!

SEAL OF APPROVAL GRANTED NEW Model 300 MILEAGE MINDER BY MOTOR TREND MAGAZINE



Here's how Motor Trend's technical staff reports on their Product Use Tests of Mileage Minder. (See April, 1959 Motor Trend for full report.)—

"Paser Manufacturing Co. has been making a fuel pressure stabilizer called Mileage Minder. This well-made and trouble-free little device . . . contains a spring-loaded diaphragm, a generous reservoir, a porous bronze filter, and a powerful magnet with a large area . . . The diaphragm soaks up the surging pulses put into it by the (fuel) pump and allows the fuel to come out the other side in a smooth flow, but in the same volume as it came in."

"In the process, all of the fuel must pass through the porous bronze filter and around the large area of the magnet. Iron oxides and microscopic particles that have passed through the fuel pump strainer are trapped in the Mileage Minder bowl, where they can be easily removed."

" . . . providing smooth fuel flow, with no loss of volume, and doing a good job of filtering out particles missed by fuel pump strainers."

Another Good Reason why...

MILEAGE MINDER

Belongs on Your Car!



You're satisfied, more or less, with your late-model car—but still, you sort of feel it's not always performing the way it should. Millions of car owners agree. What's the answer? Simple. Install a Mileage Minder, the same Mileage Minder that's just been given Motor Trend's Seal of Approval!

New Model 300 Mileage Minder has the exclusive Trouble Trap built right into it. This unique and patented permanent-type magnet has been added at no extra cost to you.

Now, save gasoline by putting an end to flooding and fuel waste. Mileage Minder gives you smooth, economical power, better acceleration, gentler idling. No more gasping, jerky pick-up, quick-stop stalling. Ends annoying gas odors inside car.

Mileage Minder causes no harmful, dangerous reduction of manufacturers' recommended fuel pressures. Fuel flows freely—no valves, checks, floats. And in normal use, its sintered bronze filter is practically self-flushing.

Bring your car to its top-performance level. Get a Mileage Minder now, this week, from your car dealer or automotive supplier. Or use the no-risk coupon below.

Paser Manufacturing Company
537 MT-66 Turk Street, San Francisco 2, California

Please send new Mileage Minder with magnetic Trouble Trap. If not completely satisfied, I'll expect my money to be promptly refunded.

I enclose check _____ money order _____ for \$6.95. (Special coupon offer includes postage.)

Name _____

Address _____

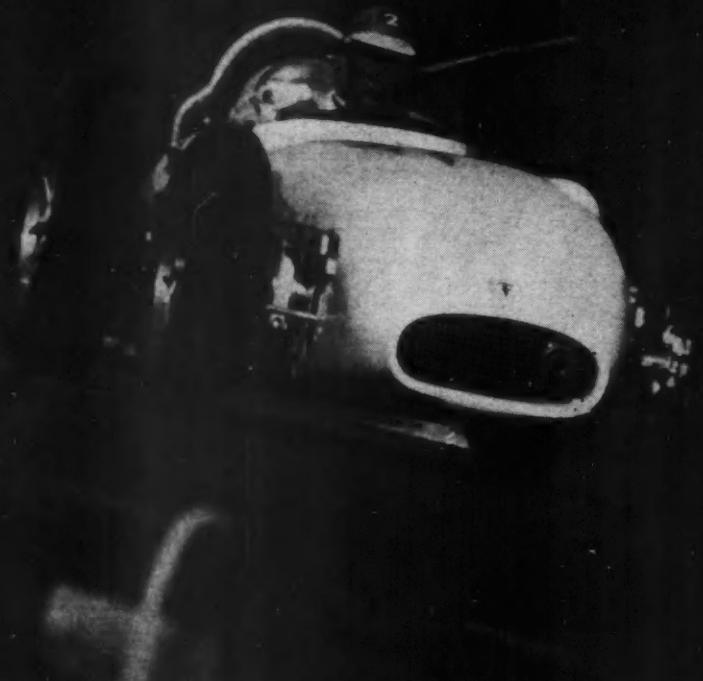
City _____ Zone _____ State _____

Make, year and engine model of car _____

**Firestone finds new Daytona course
ideal for high-speed research**

TIRE TESTING

AT 190 MPH





Pontiac Bonneville with special brakes, suspension and legal "stock" engine is used for tire testing in the 150-mph range.

by Wayne Thoms

THE WHITE INDIANAPOLIS ROADSTER flashed by us in a blur that only 190 miles per hour can create. Slowing to 160 for the steeply-banked turn, the driver wrestled momentarily for control as a sudden crosswind threatened his position in the groove; he corrected precisely and headed into the pit straight.

The urgent voice of the public address system interrupted the car's healthy-sounding deep-pitched exhaust note: "Jim Rathmann's average speed for that lap—172.8 mph."

Fast enough to qualify for any race in the world, I thought, including this course—the ultra-modern, incredibly fast Daytona International Speedway. But Monza-winner Rathmann wasn't qualifying for a race. What he was doing in steady 170-mph-plus laps was making it possible for others to qualify at similar speeds without worry over tire failure. The theatrics of blinding speed were a secondary function to his primary aim—the development of better and safer tires for the Firestone Tire and Rubber Co.

When we learned that Firestone was going to be running its fleet of three race cars—two Pontiac stockers and the Indy car (also Pontiac powered)—at Daytona in search of better high-speed rubber, we felt that the significance to MOTOR TREND readers could not be overlooked. The fact that they were conducting tests under race conditions raised a host of questions: Why should Firestone engineers, with their scientific laboratory test facilities, find it necessary to run here? What does it prove? Is there really anything new to be learned? And, most important, is there any value to you, the non-racing motorist who never abuses his tires?

We got the answers from Mel Hershey, manager of the firm's passenger, aircraft and racing tire engineering division. Soft-spoken, modest, dressed more for engineering office than race track, Hershey seemed strangely incongruous among the white-uniformed mechanics attending the cars. But he knew what he wanted and as the cars pulled in for pit stops, he checked every detail as his test crew swarmed into action, taking tire temperatures and carefully measuring wear every few laps.

According to Hershey, the Daytona tests are part of a continuing program (conducted on as many major circuits as possible as well as their own test track in Texas) to aid in the development of racing tires for various types of cars. "No single racing tire is satisfac-

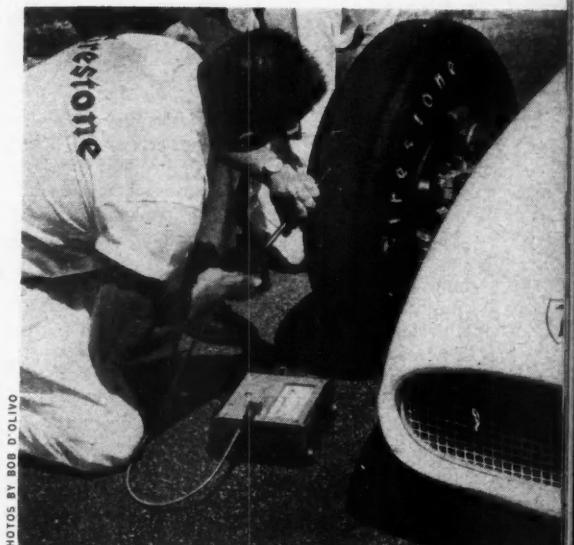
tory for all tracks," he said. "If we had time we'd build a special tire for every race course in the world. But that's too ambitious a program—even for Firestone. So we do the next best thing: work out many tire compounds in the lab and prove in the only way possible—on a race car—which ones are best."

Why isn't one tire suitable for many courses—say Monza, Indy and Daytona? Hershey was quick to explain: "Track surfaces vary in abrasive qualities and some courses require a tire with more adhesion than others. If a tire does a lot of roadholding work it wears more quickly. This course, for example, is probably the fastest in the world but due to the steep 31-degree banks it's very easy on tires. Side loadings and roadholding are not such factors as at Indy, or as they would be on a road racing course."

One important factor brought out in our discussion, which took place between Hershey's study of the test data handed him each time a car pulled into the pits, is that Firestone cannot develop a tire and then forget about it. "Even if we didn't come up with any new rubber compounds, which we do, we would still have to keep revising our rubber because courses change. New asphalt is soft but after a year or so it hardens, becomes more abrasive. Consequently, the old tires won't do. That's the problem we will face right here in a few months as the Daytona surface hardens with the passage of time."

Just exactly what are the engineers looking for when they run such tests? There are two enemies of tires—wear and heat—each a function of the other, adding up to the tire's endurance. Get a tire to run cool, wear well and adhere to the road surface and you have the

continued on page 60



PHOTOS BY BOB D'OLIVO

Tire expert checks surface temperature with electronic thermometer to determine effects of rubber compounds on cooling. High speed attained by Pontiac-powered Indy car is close to jet landing speeds.

bigger, heavier OLDS SUPER 88 is slower



despite more horsepower

THE INTRODUCTION OF THE OLDS 88 and then the Super 88 heralded a new era in high-performance American pleasure cars. These were "hot" automobiles that plunged into the horsepower race with a vigor. The "88" on the back of one of these cars was fair warning that it could leave just about any other driver looking at its tail lights as it took off.

To say that the performance of the 1959 model is disappointing is an understatement. Despite 394-cu.-in. piston displacement and 10 more horsepower claimed over last year's model, the Super 88 failed to impress us with performance, was a disappointment on fuel consumption.

Unitized body construction, strong and heavy in itself, is used in addition to a deep box-section "cow-belly" frame. It's big and it's heavy, but it is strong and quiet. New body-frame mounting methods have reduced road and engine noise to a minimum, but apparently at the expense of performance and fuel economy.

There are many other attractive features that are excellent and are being emphasized more than efficient performance. The rotary valve power steering unit is great. There is a good positive feel, effortless steering, and long-wearing advantages incorporating self-adjusting features that make this unit one of the best we have tested. We wonder, however, why faster steering was not supplied with this hydraulic advantage by employing 3.5 turns lock-to-lock instead of 4. It would make parking just that much easier and most certainly would not destroy the good roadholding qualities of the Super 88. On the highway and on the side road and unpaved surface, front coils and rear leaf springs smooth the ride to quiet luxury.

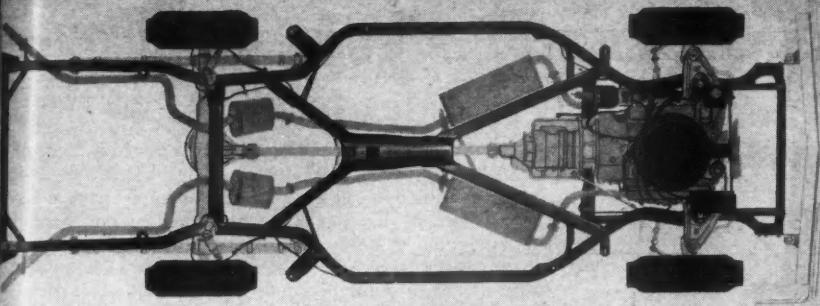
A four-speed automatic transmission with manual selector to hold it to a three-speed until reaching 72 mph, at which time it will shift into 4th, is great for city traffic and winding

roads as it does provide engine braking. This is particularly advantageous for mountain driving, for despite the extra effort Oldsmobile put into their flanged drums to reduce fade by increasing heat dissipation area and steering air over the drums, three slowdowns from 60 to 20 mph at 15 feet per second per second were all we were able to get from the test car before we experienced severe pulling to left and right of the front wheels, increased pedal pressure, and smoking brakes. There is a limit to how much pressure a fixed number of effective square inches of lining—in this case 158—will take to slow down over two tons of moving vehicle, and still get rid of the excess heat through a cast-iron drum.

The Super 88 is surprisingly flat on those fast curves, but has quite a bit of understeer. Once the front wheels are cranked into smaller than gentle radii, they have a peculiar habit of sliding sideways a great deal more than they roll in the direction of the steer.

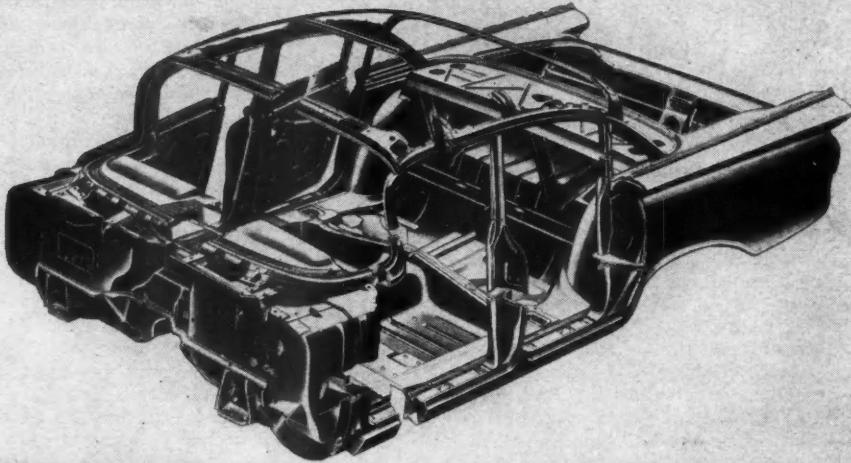
The Super 88 is beautifully made. Finish is excellent and the half pillar construction on the hardtop is rigid with a base that flare's well into the unit body flooring. This accounts for the bank vault fit on the doors that should remain in new-car condition and fit for the life of the vehicle. Visibility with the increased glass area makes that quick peek over the shoulder in heavy traffic, and general front and rear view, unobstructed by heavy corner posts or thick panels.

We like efficient cars. We also like well-made cars. Like everyone else, we like reasonable fuel economy. When a passenger car makes good use of its advertised horsepower, and/or gets fairly good mileage, this is efficiency. In view of our memory of the older 88s, we are sorry to say that the '59 Super 88 is short on performance and fuel economy . . . but as we said, it is extremely well made.



Super 88 chassis has a wide heavy frame and "X"-type cross member. Dual exhaust option uses small resonators with mufflers. Body (right) is fabricated of steel stampings, riveted and welded into a unitized structure that gives extra stiffening and forms a strong, solid, noise-free combination when bolted to outboard mounting bangers on the frame.

by Charles Nerpel
Technical Editor



OLDSMOBILE SUPER 88 FACTS AND FIGURES

ACCELERATION

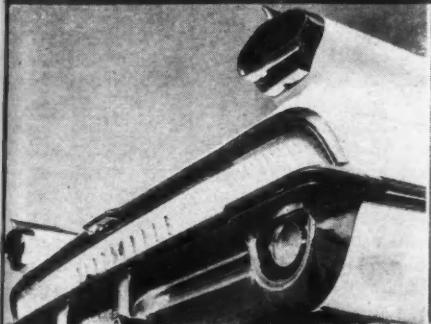
| | |
|----------|-----------------|
| 0-45 | 6.8 sec. |
| 0-60 | 11.0 |
| 1/4-mile | 17.7 & 74.7 mph |

| PASSING SPEEDS | 30-50 | 4.4 |
|----------------|-------|-----|
| 45-60 | 4.2 | |
| 50-80 | 12.1 | |

GAS MILEAGE

| | |
|-----------------|-------------------------|
| City Driving | 10.9 mpg for 345 miles |
| Highway Driving | 11.4 mpg for 443 miles |
| Average | 11.15 mpg for 788 miles |

Steady 50-mph fuel bottle test 14.6 mpg
(Gas used: Flying A Special)



SPECIFICATIONS

ENGINE: OHV V8. Bore 4.13 in. Stroke 3.69 in. Stroke/bore ratio .89:1. Compression ratio 9.75:1. Displacement 394 cu. in. 1 4-bbl. carburetor. Single exhaust. Advertised bhp 315 @ 4400 rpm. Bhp per cu. in. .79. Piston speed @ max. bhp 2829 ft. per min. Max. bhp/mph 164 psi. Max. torque 435 lbs.-ft. @ 2800 rpm.

TRANSMISSION: Hydro-Matic, automatic 4-speed, controlled coupling. Ratios 3.96:1, 2.55:1, 1.55:1, 1.00:1.

CHASSIS: Front suspension—Independent, lateral arms with coil springs. Rear—Semi-elliptical leaf springs. 9.00 x 14 tires. Power steering, ball nut, 4 turns lock-to-lock, turning diameter 46.2 ft. Overall ratio 21.8:1. Rear axle—Conventional differential, ratio 3.23:1.

DIMENSIONS: Wheelbase 123 in., overall length 218.4, overall height 56, overall width 80.8, front tread 61, rear tread 61, rear overhang 59.

PRICE: Factory-suggested retail price of test car equipped as described, including federal tax but not state and local taxes, delivery and handling charges or freight \$3990.

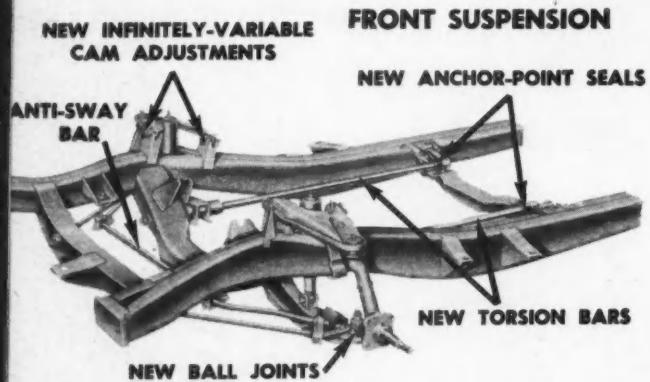
HOW MT RATES THE CAR

POOR GOOD TOPS

acceleration
brakes
gas mileage
handling ease
riding comfort
roadability
trade-in value

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| ✓ | | |
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performance, mileage, handling—



The Chrysler Windsor weighs over two tons with a full tank of fuel and one passenger, but the new front end with longer torsion bars and improved suspension points does an excellent job of providing a comfortable ride while maintaining positive steering control. It is not likely that normal road touring will ever produce the need for as much stability as encountered on the test course, but should this happen, the front suspension will keep the wheels in good position for control.



FRONT SUSPENSION

NEW ANCHOR-POINT SEALS

THE CHRYSLER WINDSOR four-door hardtop tested by MOTOR TREND was a "loaded" model. It had just about everything on it that is possible to add, except air conditioning. Such things as special interior lighting, vanity mirrors, custom steering wheel, auto-pilot, electronic mirror and headlight dipper, and tinted glass—not to mention a host of other extra-cost options—bring the f.o.b. factory-recommended retail price to nearly \$4500. But they are merely frosting a cake which, with radio, heater, automatic transmission, power brakes and steering, and Sure-Grip differential, has an f.o.b. retail of \$3869.

Speaking of cake, here is one you can eat and still have, for this car meets all the requirements of multi-purpose motorizing. It is big without being gross, goes very well (as shown in the acceleration chart), handles with a positive feather-light touch and rides beautifully, is roomy, well made and detailed—and above all, gives good mileage, which is usually hard to achieve with such lively performance.

The Chrysler Corp.'s Plymouth Fury has impressive performance and handling but is disappointing in the stopping department, and it was with some apprehension that we began the braking tests on the Windsor. Stock Plymouth 184-sq.-in. braking surface is the weak point on an otherwise excellent car, but when we started to apply the pressure to the Chrysler-Windsor's 230 sq. ins. (they offer optional 251 sq. ins.) our false fears were wiped out. The seventh of a series of 60-to-20-mph slowdowns in rapid succession required quite a bit of pedal pressure, and on the eighth stop the brakes were at full fade; all the pressure we could apply produced only 15 feet per second per second deceleration. By this time the shoes were hot enough to smell but were not smoking. As we returned to the Riverside Raceway pit area to let them cool off, we punched the pedal hard, expecting a mild stop because of their faded condition. To our surprise, the car came to a tire-smoking halt, the brakes having completely recovered in less than two minutes. The extra 21 sq. ins. offered in the larger size drum option will provide an additional margin of stopping safety for heavy loads, high speeds, and station wagons, and is closer to the 125 sq. ins. per ton that brake engineers consider to be the minimum area for modern motor vehicles.

Quick steering, good braking, effortless acceleration, and wide visibility fore and aft make city driving a pleasure. Speed on the highway is deceptive as low road and engine noise and good road-holding characteristics give the illusion that the car is barely moving. Don't let this fool you, for in DRIVE position from a standing start at full throttle, the transmission shifts from 1st to 2nd at 45 mph and from 2nd to high at 75 mph. For hilly country and mountain driving a push of the finger on No. 2 button provides engine braking. No. 2 position is also ideal for long straights combined with sharp curves as the transmission will shift into high on the straights at 75 mph but will downshift to 2nd at 65 mph on deceleration.

Driving habits have a lot to do with fuel economy, but there has to be some help from the engine. The MOTOR TREND test car was exposed to all sorts of drivers. Everyone on the staff, from the featherfoots to the leadfoots, used this car to run errands, drive on weekends, and for general city and freeway driving. Each time the tank was topped off and the mileage averaged, there was another surprise, for no matter how we drove it, the fuel consumption stayed above 14 mpg.

The Chrysler Windsor is fun to drive. There is plenty of room for passengers and luggage. Handling is not impaired by the overall size, and the rear upsweep on the overhang will clear most of the normal hazards of our concrete and asphalt civilization. Rough roads smooth out well under Chrysler's torsion bar-leaf spring combination, and the shock absorbers continued to do their job after rough treatment both on and off the pavement of the test course.

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CHRYSLER WINDSOR FACTS AND FIGURES

ACCELERATION

| | |
|----------|---------------|
| 0-45 | 6.6 sec. |
| 0-60 | 10.8 |
| 1/4-mile | 17.4 & 77 mph |

GAS MILEAGE

| | |
|-----------------|------------------------|
| City Driving | 14.2 mpg for 410 miles |
| Highway Driving | 17.5 mpg for 223 miles |
| Average | 15.8 mpg for 633 miles |

PASSING SPEEDS 30-50 4.0
 45-60 4.2
 50-80 10.9

Steady 50-mph fuel bottle test 18.9 mpg
(Gas used: Flying A Special)

| HOW MT RATES THE CAR | | |
|----------------------|------|------|
| POOR | GOOD | TOPS |
| acceleration | ✓ | |
| brakes | ✓ | |
| gas mileage | ✓ | |
| handling ease | ✓ | |
| riding comfort | ✓ | |
| roadability | ✓ | |
| trade-in value | ✓ | |



by Charles Nerpel, Technical Editor

SPECIFICATIONS

ENGINE: Ohv V8. Bore 4.03 in. Stroke 3.75 in. Stroke/bore ratio .93:1. Compression ratio 10:1. Displacement 383 cu.-in. One 2-barrel carburetor. Single exhaust. Advertised bhp 305 @ 4600 rpm. Bhp per cu. in. 79. Piston speed @ max. bhp 2875 ft. per min. Max. bemp 161 psi. Max. torque 410 lbs.-ft. @ 2400 rpm.

TRANSMISSION: TorqueFlite automatic 3-speed with torque converter. Ratios 2.45:1, 1.45:1, 1:1.

CHASSIS: Front suspension—Independent, non-parallel arms with torsion bars. Rear—Semi-elliptical leaf springs. 6.00 x 14 tires. Power steering, rack and sector, 3.5 turns lock-to-lock, turning diameter 43.7 ft. Overall ratio 19.1:1. Rear axle—Sure-Grip (cam-operated clutches limit differential action), ratio 2.93:1.

DIMENSIONS: Wheelbase 126 in., overall length 215.9, overall height 57.4, overall width 79.3, front tread 60.9, rear tread 59.8, rear overhang 59.9.

PRICE: Factory-suggested retail price of test car equipped as described, including federal tax but not state and local taxes, delivery and handling charges or freight \$3869.

ACCELERATION (from standing start)

| | | |
|------------------|-------------|---------------------------|
| 0-45 | 0-60 | 1/4-mile |
| 3.6 secs. | 5.6 | 13.4 & 106 mph |

PASSING SPEEDS

| | | |
|------------------|--------------|--------------|
| 30-50 | 45-60 | 50-80 |
| 1.6 secs. | 1.8 | 3.8 |



Bouncing slicks left ladder tracks on dragstrip surface before a sack of cement was placed in spare tire well to reduce wheel hop.

THE WELL-GROOMED '57 CORVETTE that owner Ernie Landel drove into the pit area of Riverside Raceway gave no indication that under its hood nestled a supercharged engine that had indicated 415 hp on the engine dyno. The rumble of the dual exhaust might have given away the fact that it was idling a bit fast for a street machine, but the absence of stacks or bumps usually associated with highly modified engines in stock cars is completely disarming. A closer look, however, revealed that those beautiful whitewall tires were special recaps, the rear ones carrying Inglewood "slicks."

As Ernie slid under the chassis to unbolt concealed Lakes plugs, the MOTOR TREND crew began hooking up test equipment to record acceleration times and passing speeds. This was

not the first time on a strip for this machine as the owner and Les Ritchey of Performance Associates, who built the engine, had both made timed runs on Southern California dragstrips and reached some pretty definite conclusions. First, the slicks had replaced street tires because without them the wheels just spun. Second, the stock differential was locked up to get full power to both wheels but there was still considerable wheelspin, even starting in second gear with the three-speed gearbox and a 4.11 rear axle ratio.

MOTOR TREND's timing system requires an additional passenger other than the driver, to operate stop watches and record fifth wheel instrumentation, which is an advantage for traction but a penalty for weight. In addition, we removed the spare

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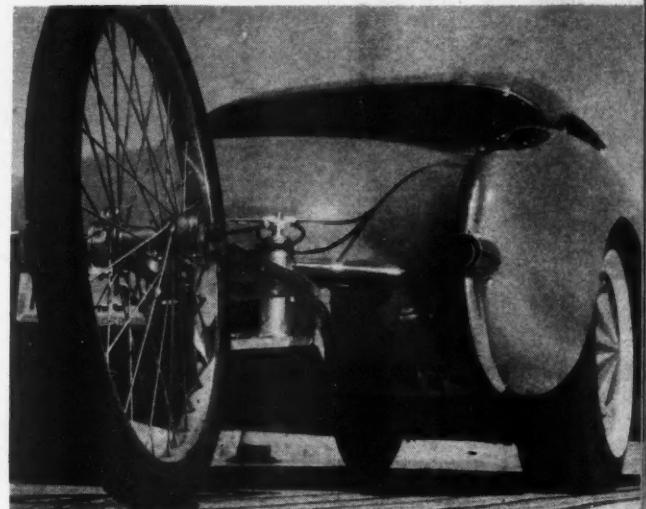
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but replaced it with a 125-pound sack of cement located well back in the spare wheel well, hoping to overcome the extra passenger and cement sack weight with better traction and lowered elapsed times for the quarter-mile.

With Lakes plugs open the quiet exhaust now became a full-throated roar from the blown $\frac{1}{8}$ by $\frac{1}{8}$ bored and stroked engine with a displacement of 328 cu. in. A set of 270 heads, reworked to 8.8 compression ratio to take better advantage of the volume from the Latham blower that produced 8.75 lbs. of boost at 5000 rpm, and a Chet Herbert 270 roller cam driving stock valves were the major modifications. Balancing, of course, and four Carter side-draft carburetors of the same type used on the old '54 six-cylinder Corvette, plus a lot of tuning and jet experimentation on the engine dyno, finally produced an engine that was docile enough for the street, but could give a good account of itself at the strip.

As the stock tachometer indicated only 6000 rpm, we planned to shift when the needle passed this mark. It was going so fast, however, that our shifts were taking place somewhere in the neighborhood of 6500. The additional passenger weight, plus our cement sack in the rear, aided traction but we still left two streaks of rubber for 380 feet from the starting line as we recorded 106 mph and 13.4 seconds for the quarter-mile. All of our times were within fractions of the electronically timed runs (driver only) made at Southern California strips.

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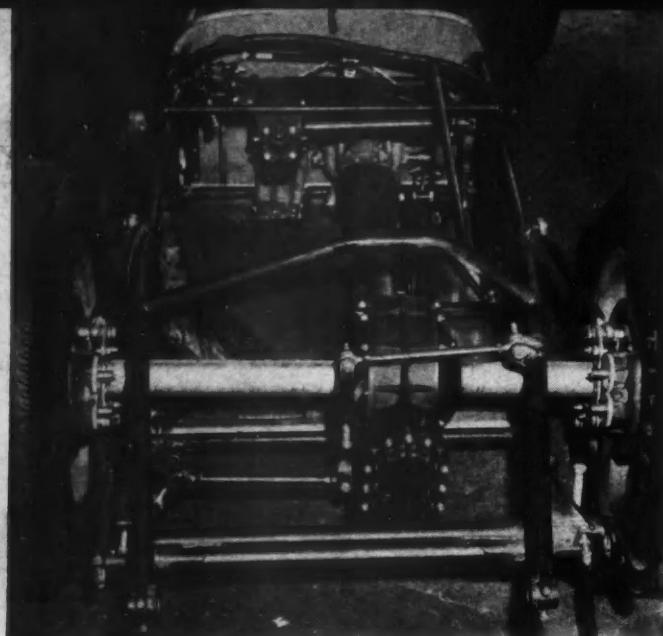
Inglewood slicks are well camouflaged by white sidewall tires. Bicycle wheel is part of instrumentation for timing speed runs.

by Charles Nerpel, Technical Editor

CORVETTE

No bumps or stacks mark the '57 Corvette as a real powerhouse. Owner Ernie Landel explains to MT Technical Editor how it was necessary to cut and remove only one hood reinforcing strip to clear top-mounted supercharger.





**offset frames
roll bars
tilted engines
driver safety
better tires**

*. . . will these enable
a 60-second lap?*

1

INDY DESIGN FOR '59

Photo Story by Lester Neaman

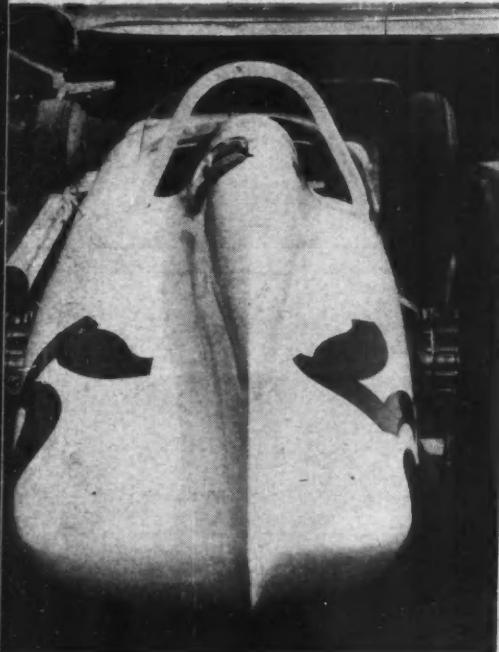
THREE WILL BE MORE than a question of speed settled at the Indianapolis Speedway this year as some unconventional designs take the course to prove the theories of the men who built them. Straight-up, tilted and flat engine positions have already been tried with varying success.

"Roadster"-type bodies that shield the driver from wind and use engine weight to load the inside of the car in cornering, with the driveshaft running just under the driver's left elbow, will dominate the '59 field. The Lujie Lesovsky car will reverse this system, putting the driver's weight inside, with the engine and driveshaft to the right.

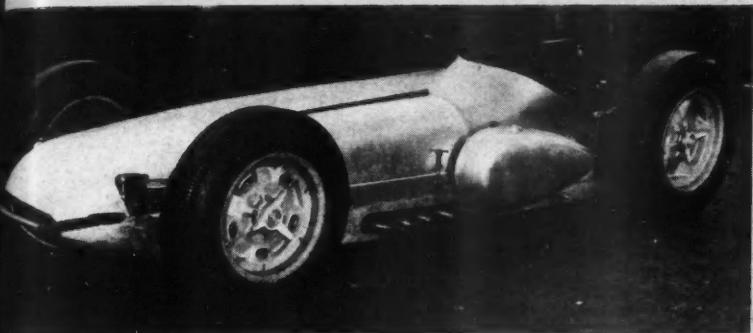
Several Indy candidates are completed, some have already shown their capabilities at Daytona Speedway, with A. J. Watson's cars running 1st and 2nd. Both of these speedway machines featured straight-up engines, but they were offset well to the left as was the entire chassis. For every car completed and ready, there will be at least three rushing to work out the bugs at the Speedway, and some will still be under the welder's torch and mechanic's wrench right up to final qualifying deadline.

Under the '59 rules, roll bars will be mandatory, and even these incorporate other safety features, such as extensions at the side to keep driver's elbows away from the rear wheels. Detroit has occasionally offered speedway-proven design features in their passenger cars, but at least one Indianapolis entry will feature an idea copied from pleasure car builders—the recessed steering wheel. Why? It's a safety feature.

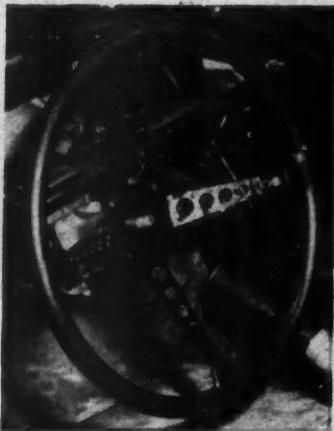
This year, the right combination of designs—plus better tires—might spell a new era at the brickyard . . . the 60-second lap.



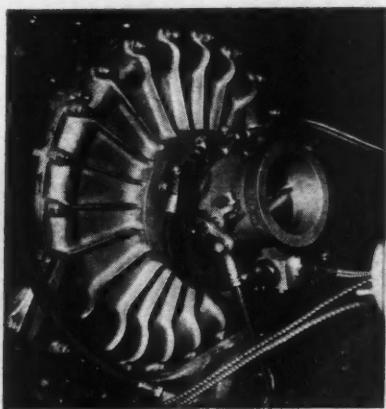
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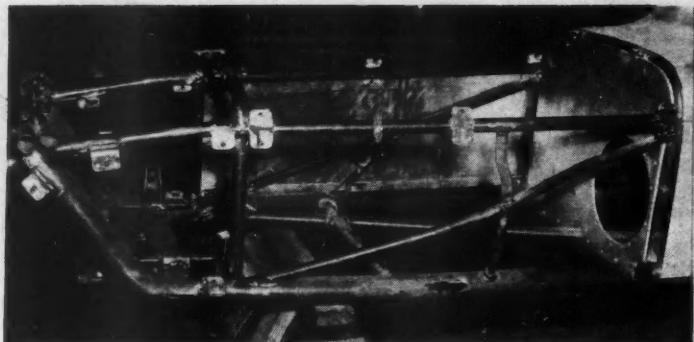
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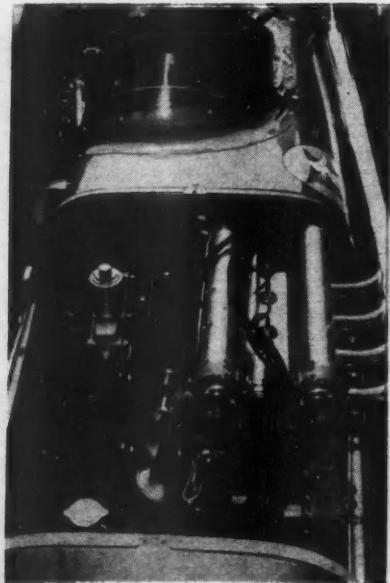
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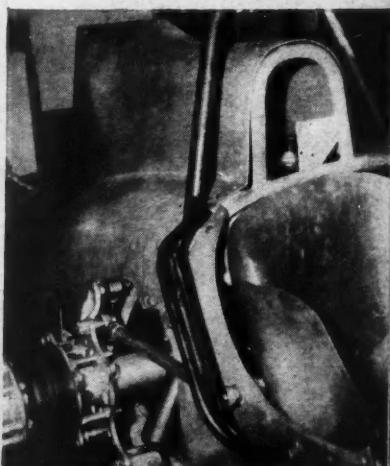
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1) Lujie Lesovsky reverses offset engine practice by putting driver to the left, and engine and driveline on the outside of left-hand turn.

2) Roger Ward drove this A. J. Watson car to 2nd place at Daytona. Engine driveline and body are on left, with driver weight to right.

3) Lesovsky car will be lowest of all Indy entries with 34 ins. between track and top of roll bar.

4) Driver Johnny Thompson will turn this recessed-for-safety wheel on the Lesovsky car through 800 corners during the 500-mile event.

5) Centrifugal blower on V8 Novi has single air intake fed by 4 Hilborn fuel injection nozzles.

6) Combination large- and small-sized tubing with lower members flame-bent to reduce welded joints is aimed at lighter weight, greater strength for the two cars Eddie Kuzma is building for Dean Van Lines.

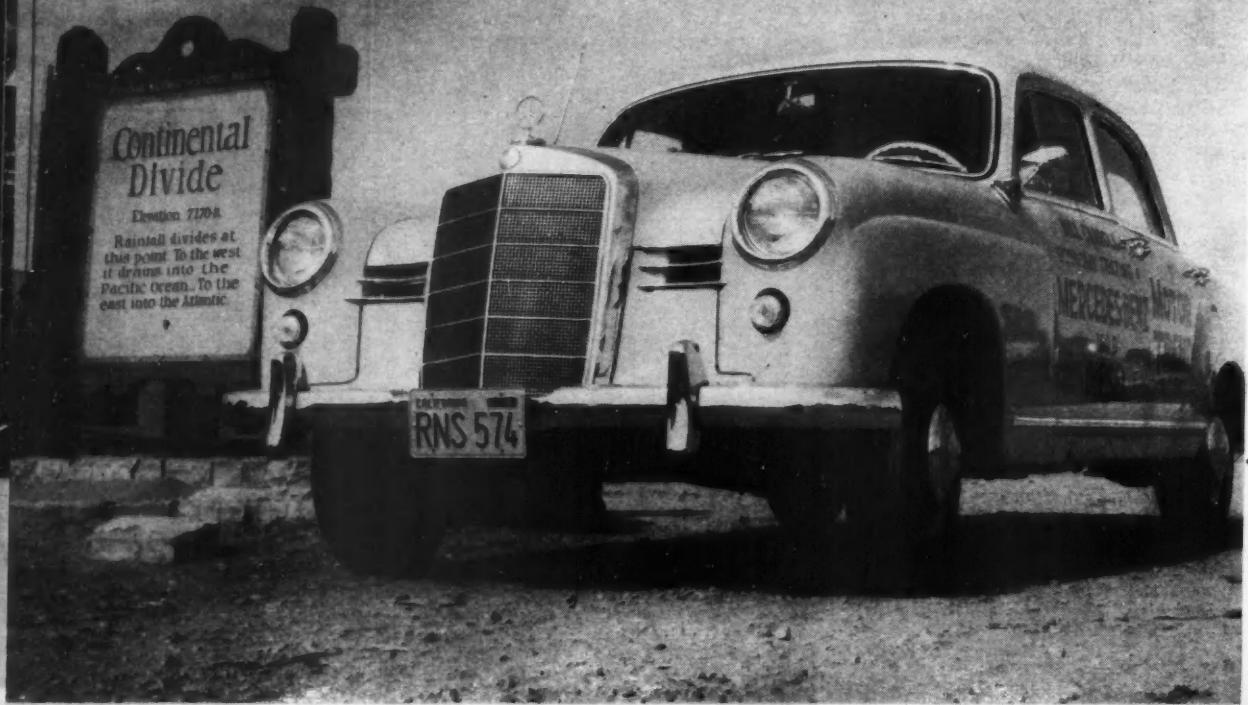
7) Radical engine offset of A. J. Watson car may have contributed to Jim Rathmann's victory at Daytona.

8) Roll bar on the Novi is combined with guard to keep driver's elbow away from right rear wheel. Roll bars, mandatory at Indy this year, must be head high.



CROSSING THE U.S. ON ITS LONG-DISTANCE ECONOMY RUN, THE MERCEDES 190-D ENCOUNTERED ALMOST EVERY TYPE OF HIGH

Is the **DIESEL** the



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E OF HIGHWAY, WEATHER AND TRAFFIC CONDITION—PLUS AN ENDLESS ARRAY OF INTERESTED SPECTATORS AT EVERY STOPPING POINT.

coming economy car?

Could be, as 5122-mile test run from Seattle, Wash. to New York City in a Mercedes-Benz 190-D gives these amazing figures: 41 mpg average at an average speed of 41 mph. Total cost—\$32.27 or about 6/10ths of a cent per mile.

by Bill Carroll

MISTER, THEY DON'T MAKE diesel engines small enough for passenger cars. If I put diesel fuel in your tank, this car will never run again," grumbled the attendant of a little Midwestern station. So we had to pop the hood of MOTOR TREND's test car to prove there really is such a thing as a diesel car.

It all began back in 1876, when a German by the name of Otto built the first practical spark ignition four-stroke engine. By 1892 Rudolph Diesel had proposed an engine in which air was compressed until high temperatures were reached to ignite fuel injected at maximum cylinder pressure. This is the diesel engine. No ignition system, and a fuel that is difficult to burn in the liquid state, before mixing with air at a higher compression ratio than used in Otto engines.

By 1936 the Daimler-Benz firm had enough experience building huge ship and powerplant diesels to begin production of a tiny four-cylinder unit for their passenger cars. Today, more than 100,000 Mercedes-Benz diesels are scooting around Europe. Most of them are in taxis because they have proved to be more economical than any other common form of automotive power.

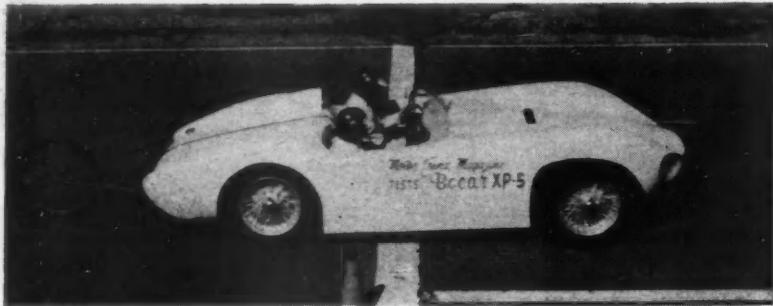
Two years ago Mercedes-Benz announced a new and highly improved diesel passenger car with the same body and chassis as used for 180, 180-D and 190 sedans. But model number and engine are totally different. The 190-D (for diesel) is a true diesel in which fuel is atomized into the Daimler-Benz pre-chamber combustion system that has proven both reliable and quiet. The new four-cylinder engine is of 115-cu.-in. capacity, runs an amazing 21 to 1 compression ratio under an overhead camshaft to produce 55 horsepower at 4000 rpm.

We expressed interest in testing this new edition and the Mercedes people held a hurried conference which up-ended a happy offer. "No one can get the feel of a diesel in 200 miles," they said. "Drive it across the country and you'll really appreciate the economy of the 190-D."

Ten days later a nearly new (1728 miles on the clock) 190-D began threading its way through a cold dawn just opening its eyes over Seattle, Wash. We were beginning our 5122-mile "economy test run" to New York.

On the main highways sleepy drivers popped awake as they read signs identifying the first diesel they had probably ever seen . . . 16 miles outside Ukiah (Calif.) a deputy sheriff

continued on page 64



TESTING the 160-mph BOCAR!

A nudge on the accelerator... screaming tires clutching at the blacktop, biting, and down the straight at well over 200 feet every second...

by Len Griffing

THE BOCAR XP-5 IS A 160-MPH SPORTSCAR. We drove it very nearly that fast with 3.70 gearing—not remarkable in itself, but we were driving a road machine. We drove it for 1300 miles through four states, drove it to Riverside, tested it, then drove it home.

To start at the middle of the story, 75° air and sunshine greeted us as we swung open the gate to Riverside Raceway and nosed the sleek white car over the dry blacktop, which seems to have a permanent "line" rather expensively burned into it by the tires of both temperamental imports and hairy brutes like Max Balchowsky's Buick Special.

There's always a certain apprehension with a big-engine car. Big engines go fast, and when things start to happen they happen quickly. It's different from lead-footing an MG.

Initial laps were in the 100-mph range—fast, but the car turned flat and fast, following the dictates of gentle corrections on the wheel. Once in the turn, the throttle did the steering. On the long straight, it tracked like an arrow and the engine seemed to rev without limit—150 mph came in right now. We were running about six pounds per horsepower.

As we circulated lap after lap, that magic, ragged edge between tire adhesion and centrifugal force got further and further away, as we went faster and faster.

First around was the Tech Editor, who after four laps broke 2:20—an average speed of better than 85 mph. At the first driver change, Bob Carnes, designer and Bocar factory owner, explained that top speed is a function only of gearing, as the

Corvette engine will red-line with any gears. We were running 3.7 ratio—neither the highest nor the lowest—so our top red-line speed was 145 mph at 6500 rpm, or 155 mph at 7000 rpm. Since Bob was driving to Denver immediately after we finished, we respected the midpoint of about 150 mph.

We were timing laps from the turn leading into the long straight. Then it happened.

"Something's wrong."

"How do you know?"

"He's over three minutes on the watch."

Into the service car and around to see the ambulance pulling from the pits to the track ahead of us. They had a stop watch, too. Full open down the straight and into the sweeping right-hander at the end, braking sharply beside the listing Bocar. The driver was sitting on the rear deck with knees tucked under his chin waiting for a ride. The left front wheel had come off halfway down the straight.

Bob Carnes, embarrassed, broke the silence: "I designed the car with something like this in the back of my mind. These things happen. I'm sorry, but at least I know my designs were good."

Examination showed that someone had reversed the front hubs. Instead of wheel rotation tightening the knock-offs, it had been loosening them. Imagine the driver: full-bore, a look to the right at the speedometer—145 mph; a look to the left—a wheel all by itself. "Some poor devil lost a wheel!" Yes, some poor devil did.

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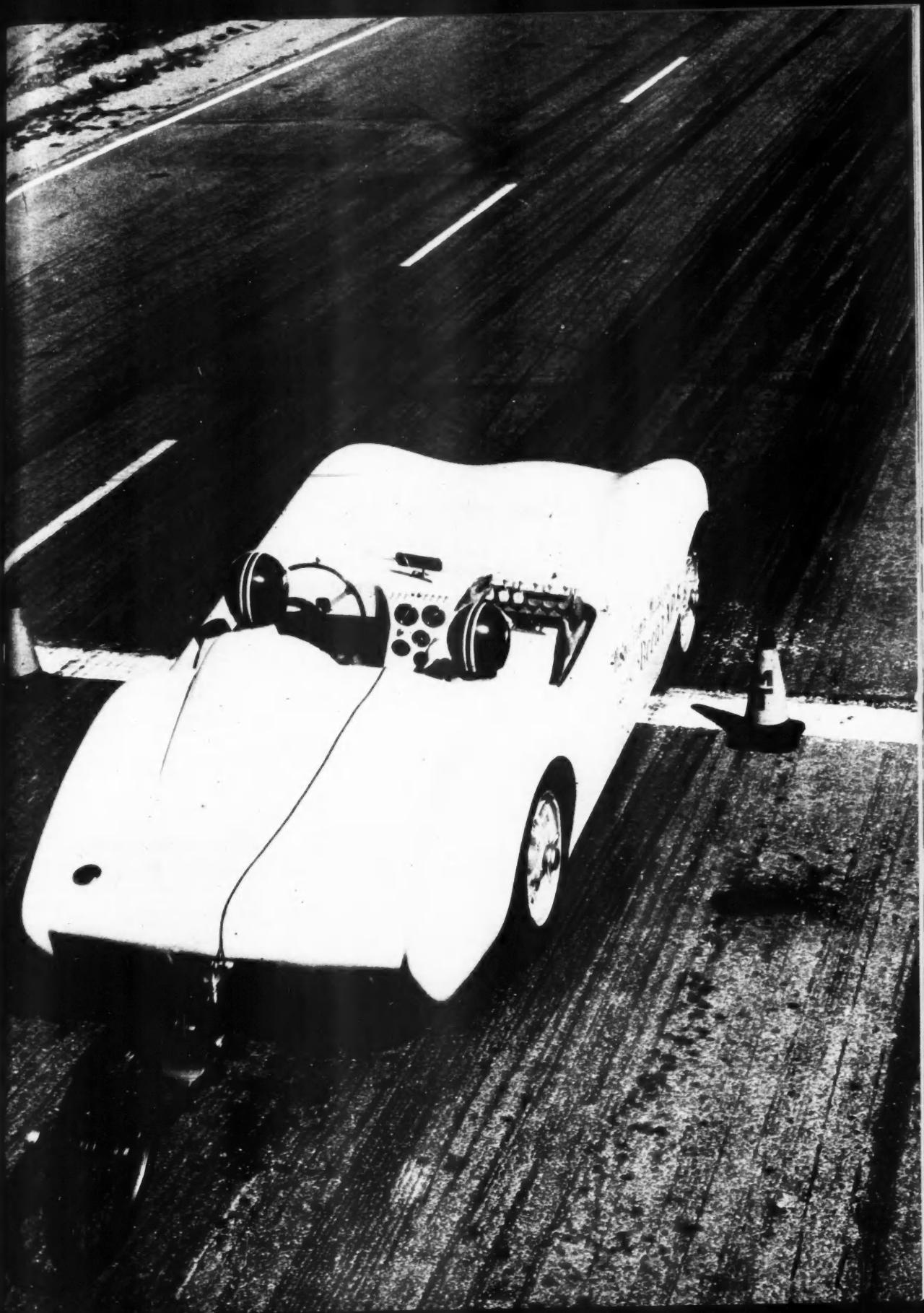
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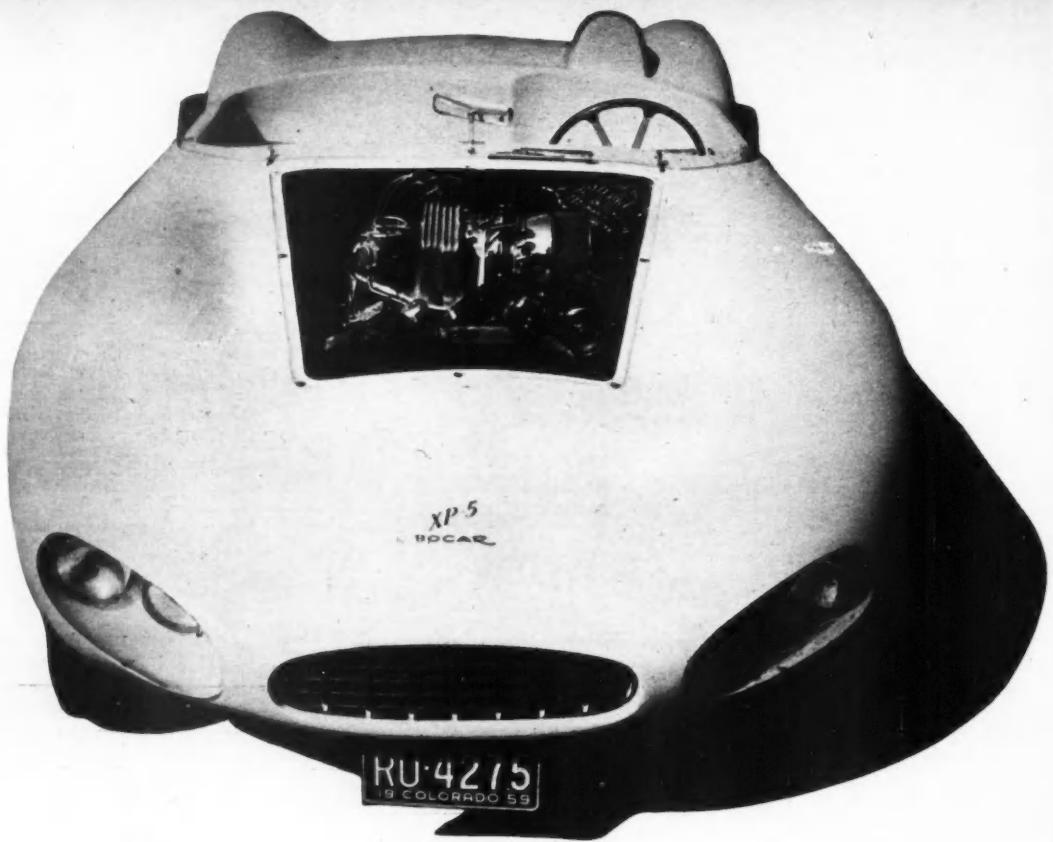
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• 36







BOCAR continued

According to the ambulance drivers, the briskly moving car seemed to foil, oblivious of its missing wheel, surrendering speed slowly to friction and wind resistance as it ate up all the straight. When speed dropped to about 100 mph, the wheel-less drum eased down toward the road, until at about 90 mph it made its first painful, sparking shriek. Then it started to spin as it took loading. Since no suspension or frame components were lower than the bottom of the drum, the car had three rubber and one small, finned aluminum wheel. Momentum carried the disabled projectile halfway through the right-hander before it settled to a stop still on the track!

After a good hour of beating the brush, we found the wheel about a half-mile back. The knock-off hub was another half-mile and two turns back.

Time to quit road testing? Four lifted and one placed wheel to spindle, heavy hammers beat the threads home. First laps by cautious drivers were rather slow but increased in tempo. What could happen now?

"When I get back to Denver," said Bob, "I'm going to get all the boys together. I'm going to tell everyone to raise his left hand. The guy who raises the wrong paw is going to take off the wheel, look at that scarred-up drum, and then get a good hard kick." We didn't ask him where.

Bob Carnes is at heart an aeronautical engineer who builds cars because he can't buy them with the simplicity and effectiveness with which he can build them. Naturally, his designs are aeronautically sound.

The chassis and body were designed specifically to perform at very high speeds. Frame and body combination is strictly aircraft-type, with practically no torsional deflection in the frame. At speed, the body tends to foil the car through

Dzus fasteners remove hood, expose engine mounted 1 3/4 in. to right, which equalizes side-to-side loading with driver.

"I looked to the right at the speedo - 145 mph; I looked to the left and saw a wheel rolling beside me. It was mine!"





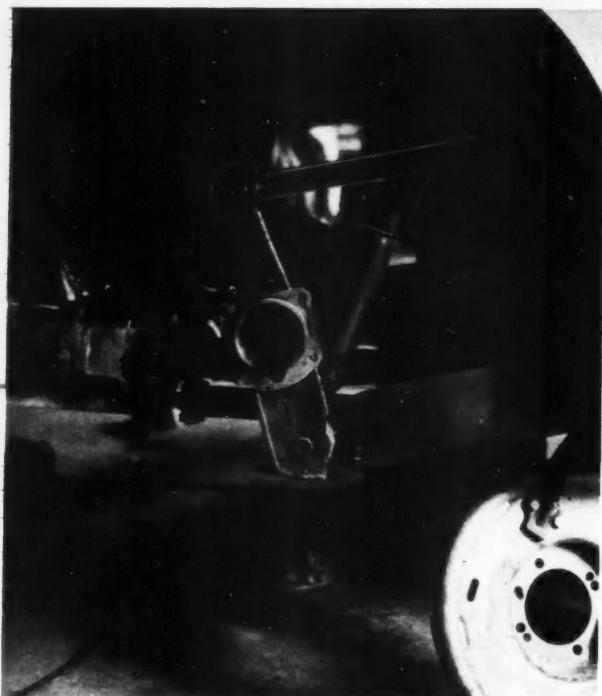
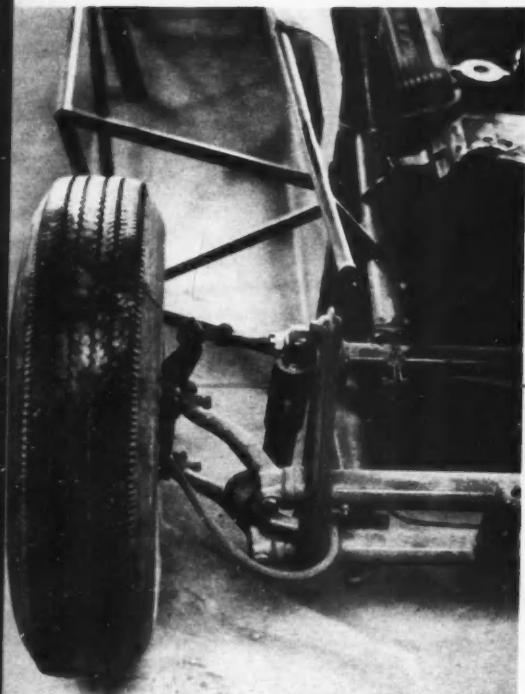
Separate hydraulic cylinders actuate the brakes and clutch. Pedal bracket is solidly welded to three frame members.



Finned bi-metallic stock Buick drums and 480-sq.-in. lining area per ton provide binders that stop and just don't quit.

Engine is placed well back, resting literally between the passengers and providing 44/56 front/rear weight distribution. Under acceleration, ratio becomes wider as weight transfer loads rear wheels for adhesion. Seats and wheel have 4-way adjustment.





Front suspension is basically that of the Porsche or VW design, with equal trailing arms and torsion bars. It's a study in efficient simplicity. Rear uses live axle, two trailing arms with lower arm attached to torsion bar.

On re...
tires.

BOCAR continued

the air. With a departure point (point where penetration ends and drag begins) three inches forward of the front hubs, almost the entire length of the body form becomes drag area, providing tremendous high-speed stability to a short-wheelbase car (overall length is equal to that of a Porsche).

Another factor that helped keep the three-wheeled wonder on the road was balance: engine, transmission, driveline and radiator are offset $1\frac{1}{4}$ inches to the right. With driver only, wheel loading from side to side is very nearly equal. With passenger, both sit literally beside the engine, which is set well back actually into the cockpit. There is no crowding, since the shoulder width is nearly four inches wider than in a Corvette. Seating position is low, and a six-footer cannot reach the firewall with his feet. We were not crowded during acceleration runs with two aboard.

Despite the tired engine, it was tricky to get off the line without wheelspin in the first two gears. The Michelin X's, suited for good side-bite on the twisty road course, were not asphalt slicks. Slicks would have taken a few seconds off standing start times; however, would have added to lap times. Passing-speed times are more meaningful.

Once rolling, where wheelspin was less acute, acceleration

was fantastic, requiring only 6.5 seconds to get from 30 mph to 80. At 100 mph, mashing the throttle was neck-snapping, and the rear tires could be broken loose in third gear on any turn. This, with an engine that ran last year's Pikes Peak Hillclimb, and has since been the factory test engine. The plugs had not been inspected for 7000 miles. With a good engine . . .

Bocars are built for the individual customer's satisfaction, with any options he wants. Heater, radio, choice of two hard tops, two types of door hinge for track or street, choice of wheels, brakes and tires, either Corvette or Pontiac engine, carbureted or injected in any state of tune. And, the last you get absolutely free. The fully adjustable steering wheel and padded seats are custom-fitted to the new owner.

The car is a well-rounded, very-high-speed machine that's as happy in a traffic jam as it is on open road or a road course. Cruising speed is whatever you want to do; top speed whatever you gear for; cornering speeds are in the order of all-out full-race machinery. It's a logically designed, high-speed sports car.

For the price, we think Bob Carnes is the only one who gets cheated.

SPECIFICATIONS

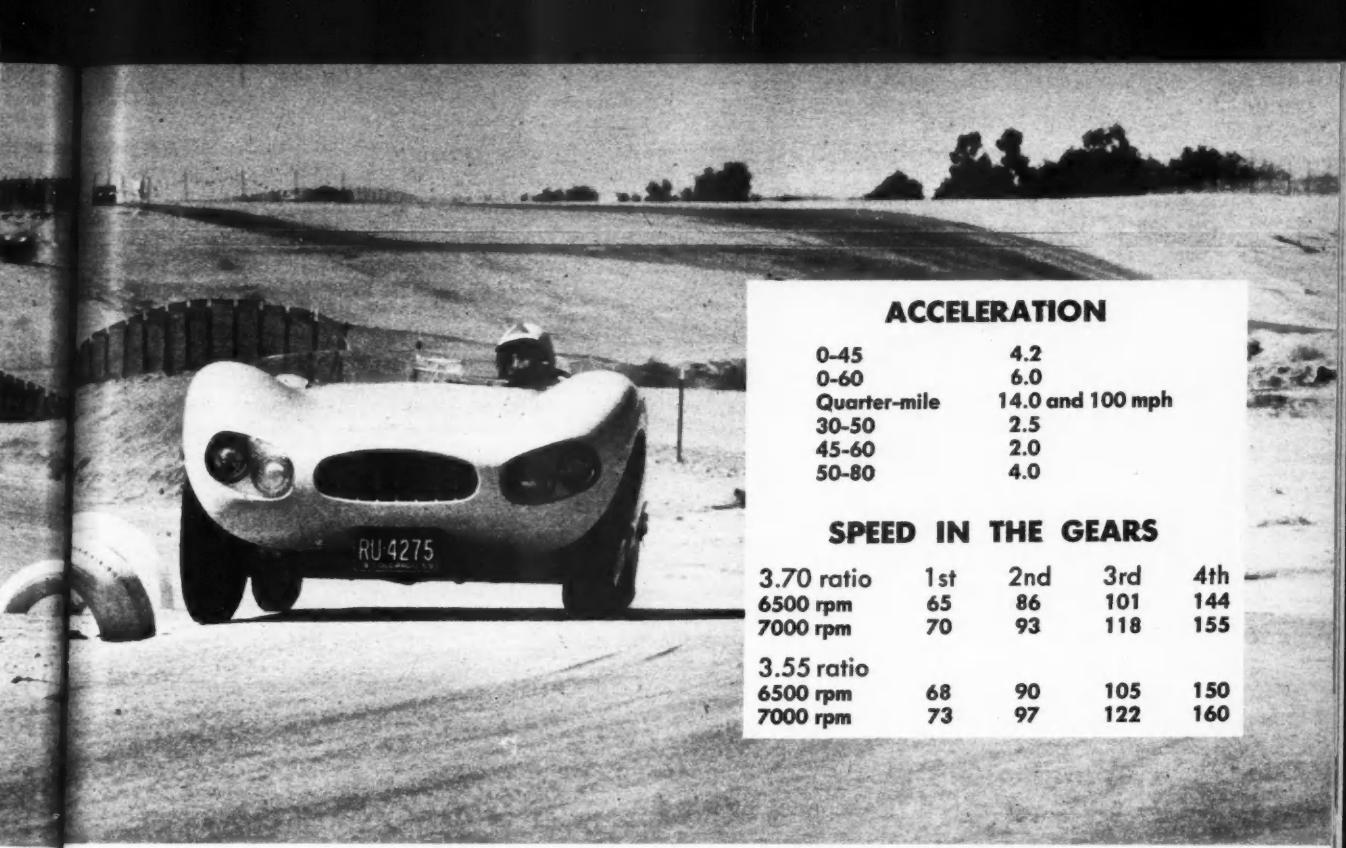
ENGINE: Stock Chevrolet Corvette, fuel-injected. Bore 3.88 in. Stroke 3.0 in. Stroke/bore ratio .78:1. Compression ratio 10.5:1. Displacement 283 cu. in. Advertised bhp 290 @ 6200 rpm. Bhp per cu. in. 1.02. Max. torque 290 lbs.-ft. @ 4400 rpm.

TRANSMISSION: Corvette 4-speed. Ratios 2.20:1, 1.66:1, 1.31:1, 1.0:1.

CHASSIS: 4130 chrome-moly tubing trussed to the outline of the body. Includes suspension mountings, gas tank mount, rear torsion bar tube with internal splines, spare tire rack. Weight 154 lbs. Front suspension — Torsion bars and trailing links, tubular shocks. Rear — Torsion bars and

trailing links, tubular shocks, Chevrolet Posi-Traction live rear axle. 6.00 x 16 Michelin X road-racing tires. Brakes — 12-in. radial-finned bimetallic Buick drums, rear lining 2½ in. wide, front 2¾ in. Braking area 397 sq. in.

DIMENSIONS: Wheelbase 90 in., overall length 156, overall height 34, overall width 66, front tread 54.5, rear tread 52, weight (dry) 1650 lbs.



ACCELERATION

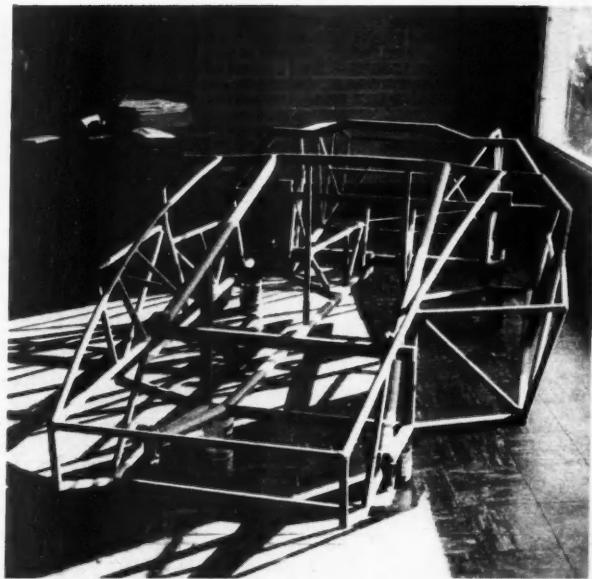
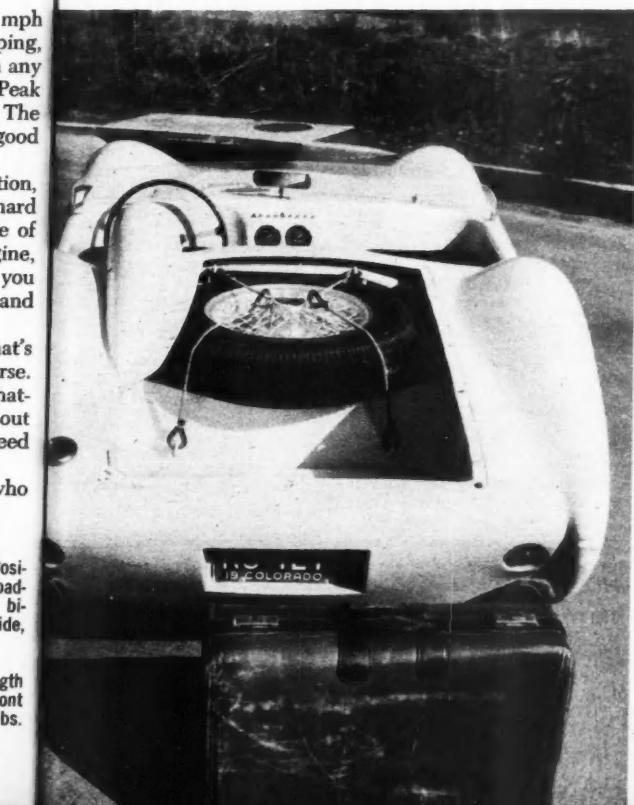
| | |
|--------------|------------------|
| 0-45 | 4.2 |
| 0-60 | 6.0 |
| Quarter-mile | 14.0 and 100 mph |
| 30-50 | 2.5 |
| 45-60 | 2.0 |
| 50-80 | 4.0 |

SPEED IN THE GEARS

| 3.70 ratio | 1st | 2nd | 3rd | 4th |
|------------|-----|-----|-----|-----|
| 6500 rpm | 65 | 86 | 101 | 144 |
| 7000 rpm | 70 | 93 | 118 | 155 |
| 3.55 ratio | | | | |
| 6500 rpm | 68 | 90 | 105 | 150 |
| 7000 rpm | 73 | 97 | 122 | 160 |

On reverse-banked sharp cutback, tremendously high power to weight ratio provides drive to sustain big slip angles on all four tires. Well designed suspension keeps all wheels on the road. Driver steers car exactly with small corrections and throttle.

PHOTOS BY BOB D'OLIVO, WALT WORON, LEN GRIFFING



Frame is constructed of chrome-moly welded tubing, includes suspension mountings. Body is trussed directly to frame. Cockpit is a pod surrounded by frame members.

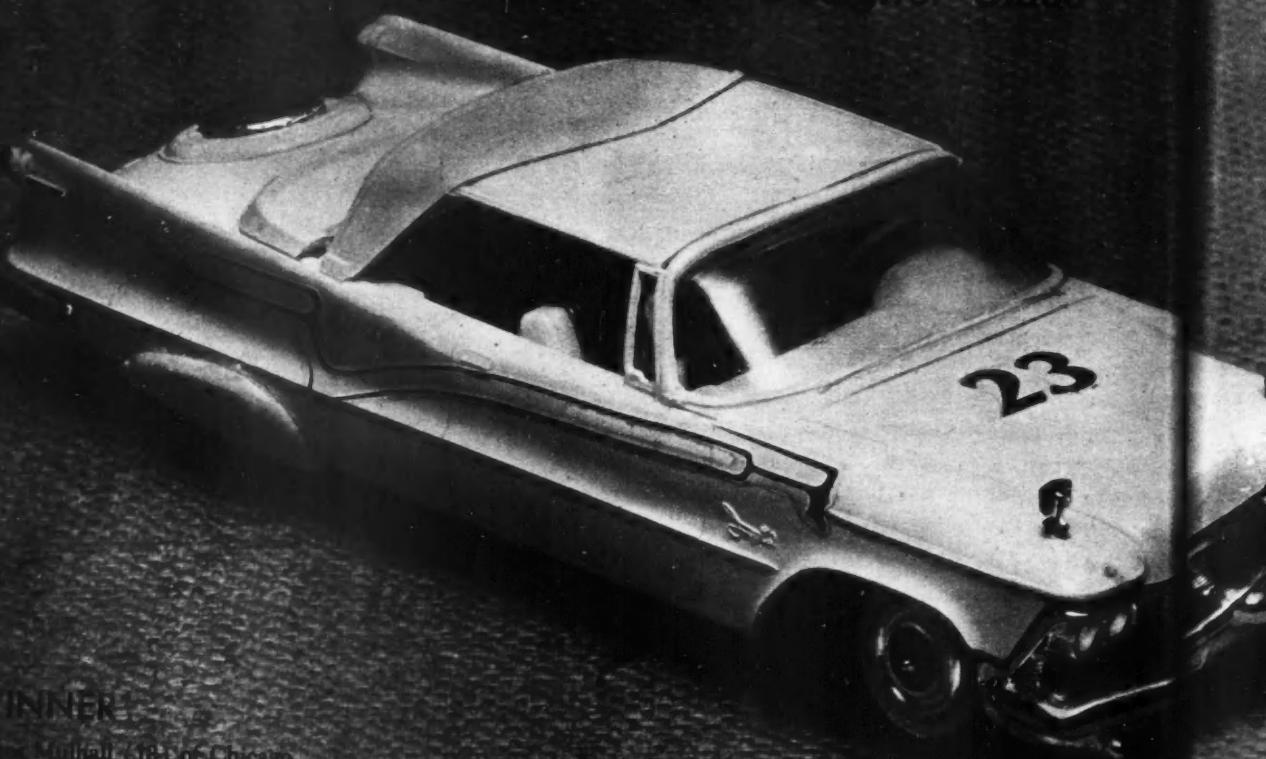
Trunk lid is secured with Dzus fasteners, faired smoothly into the body lines. The suitcase dropped into the trunk with enough room to spare for a number of smaller pieces.

CUSTOM CAR CONTEST

project

I ndividual
D reamers
E ncourage
A dvance
S tyling

APPRENTICE
Designer Class



WINNER

James McHall, 18, of Chicago,
customized this model of a '58 Chrysler
Imperial with a lowered tire shell, headers,
low-view mirrors, straight rear叶子spring.

PRIZES AWARDED EVERY MONTH

Senior Designer Class \$100 Savings Bond
(Open to all entrants)

Junior Designer Class \$50 Savings Bond
(Entrants aged 19 or under)

Apprentice Designer Class \$25 Savings Bond
(Entrants aged 13 or under)

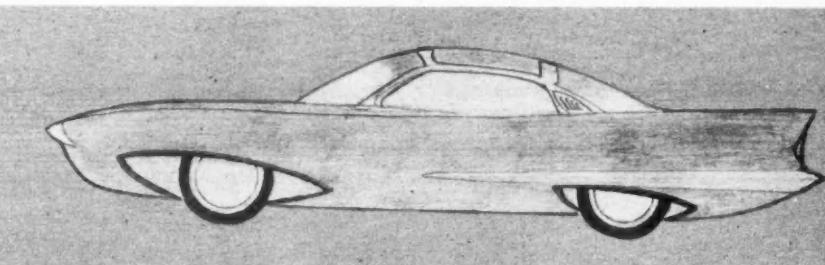
GRAND PRIZES (awarded at year's end)

FIRST PLACE: A 16 x 32-foot \$3500 Esther Williams swimming pool. Installation included.

SECOND PLACE: An all-expense-paid trip for two to Washington, D.C.

THIRD PLACE: Brake linings for your car for the rest of your life.

For Contest Entry Blank, Rules, or more information, write:
PROJECT IDEAS, P.O. Box 272, Venice, California



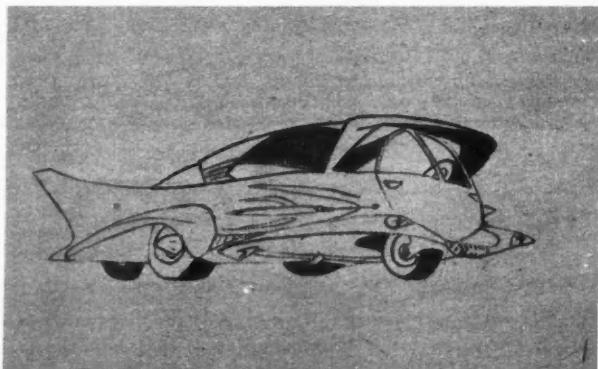
Car design with 3-section glass roof and unusual wheel cutouts wins an Honorable Mention in the Apprentice Designer Class for 13-year-old Tim Burak of Seattle, Wash.

SELECTING THE FIRST MONTHLY WINNERS in our Project IDEAS contest was no easy task. The hundreds of entries received, from contestants of all ages, showed that design ingenuity can be anyone's natural gift. For example, we received an amazing flying car idea from an eight-year-old! This convinced us that today's youth truly is thinking in terms of tomorrow and "advance styling."

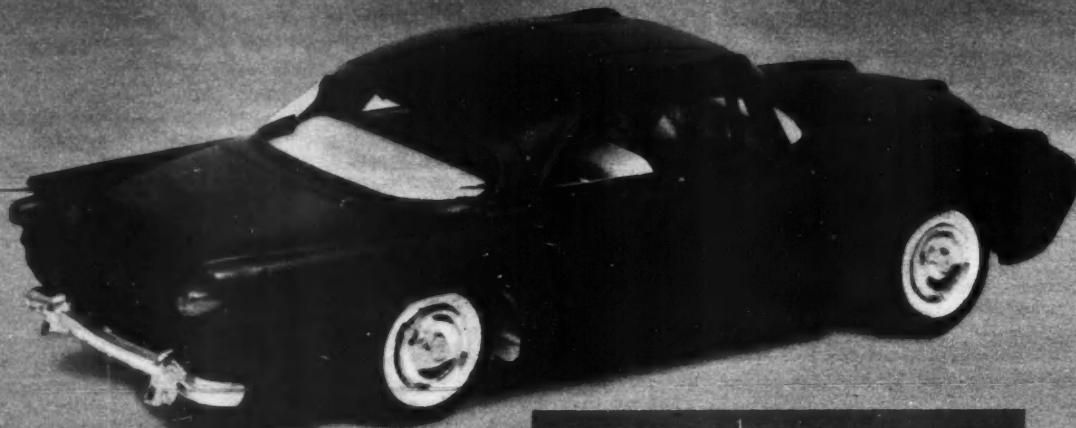
It was real gratifying to go through the entries received from all over the country (and many from overseas), and to see the practical approach that our young readers can take to various automotive problems. In addition to styling concepts for customizing models, youthful contestants showed a surprising grasp of design principles. As a matter of fact, winner in the Senior Designer Class (no age limit) was a 16-year-old.

There were very few entries received of photos of actual full-sized cars, showing either the complete car or just one customized detail. So — calling all customizers . . .

Several words of advice to entrants: Identify all drawings and models with your name; pack models carefully (some suffered damage in transit); include your age and class you're entering.



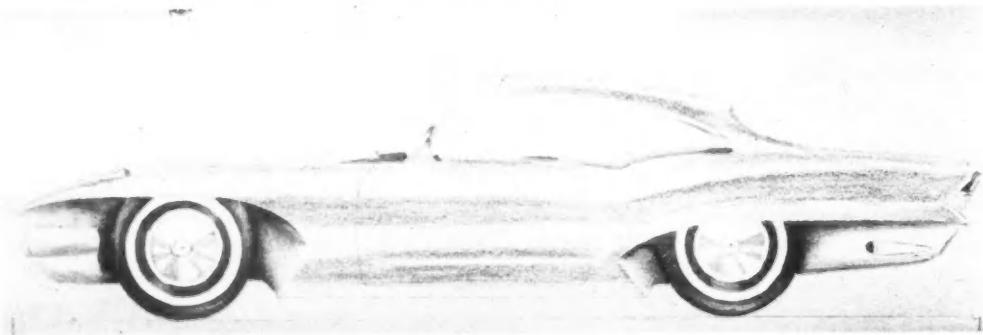
Robert Hendrickson, aged 12, of Linden, N. J. sketched this car with diamond-pattern wheel arrangement (Honorable Mention).



project

Individual
Dreamers
Encourage
Advance
Styling

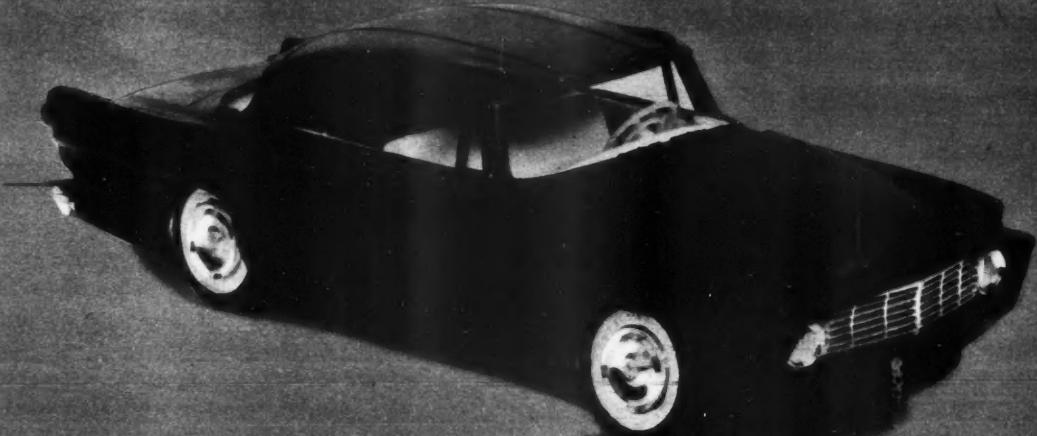
JUNIOR Designer Class



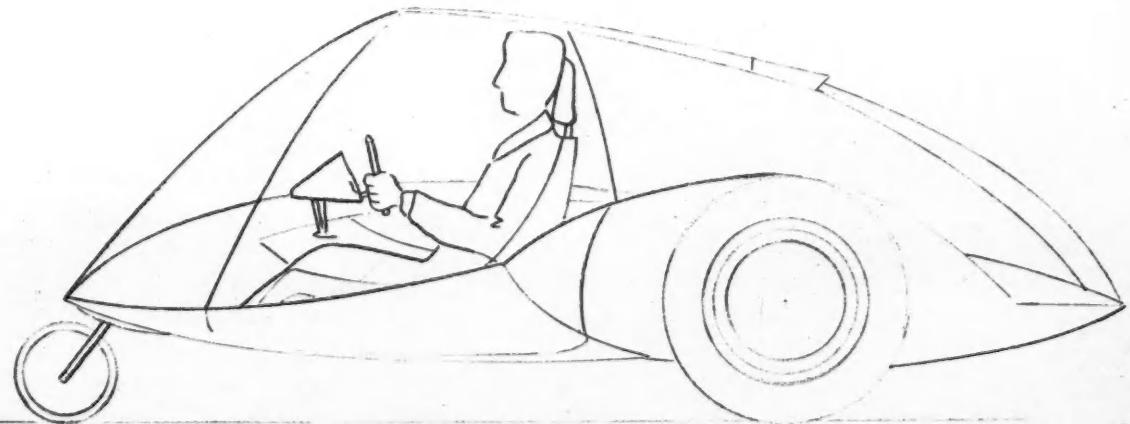
A sports coupe with open wheel cutouts, faired-in exhaust and wrap-over windshield, wins Honorable Mention for Richard Mordecki (16), McKeesport, Pa.

"Three-wheel utility station wagon" is the way Ernest Gerlach (19) of Brooklyn, N. Y., describes the car sketched at right. Small electric motors drive the rear wheels; airplane-type front wheel steers. Body is of plastic with large glass areas. The seats are formed plastic, with adjustable built-in headrests.

Other Honorable Mentions: 1) A headrest designed by Robert Van Horn (15) of Clinton, Iowa, that disappears by recessing into the top of the seatback. 2) A system for cooling brakes with blower-driven, refrigerated air flowing through an enclosed ducted circuit inside the brake drum. Dan Sipka, Jr. (14) of Newton Falls, Ohio, was the designer.

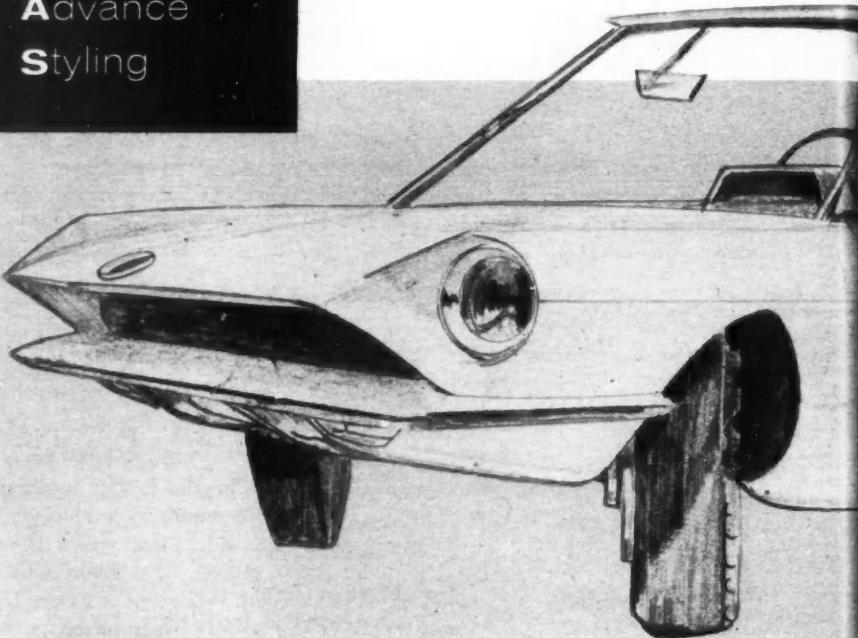


WINNER Starting with a Revell model of a Chrysler 2-door hardtop, Bill Johnson, of Temple City, Calif., used design ingenuity to produce this strikingly styled custom. A '55 Ford rear bumper, mounted upside down, wraps around into dished rear fender panels; protruding tail lights are shrouded. Ford grille, with Chrysler headlights laid sidewise, is enclosed in extended shroud. Front fender scoops have been fashioned from original headlight frenching. Sculptured roof has front scoops. Bill, aged 15, reports that he has been customizing "for a number of years."

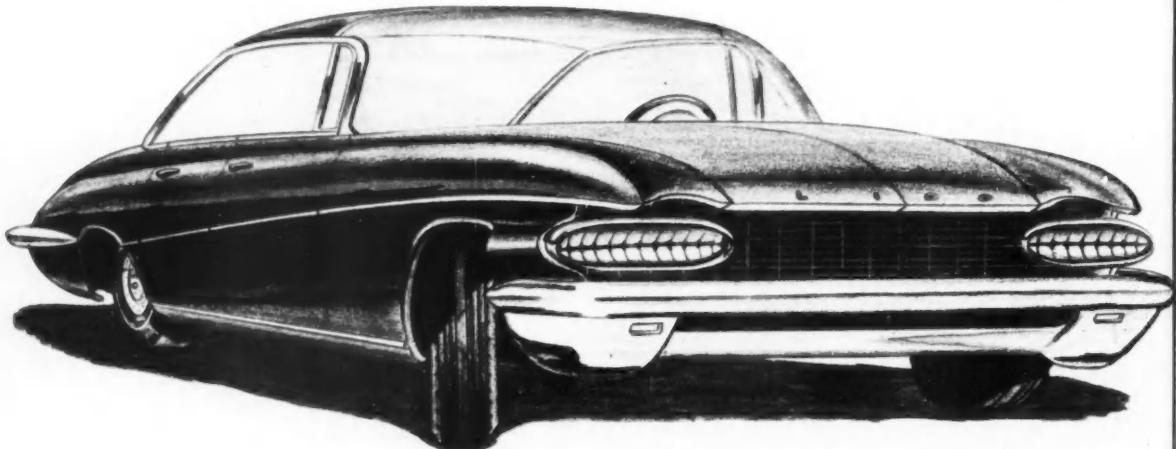


project

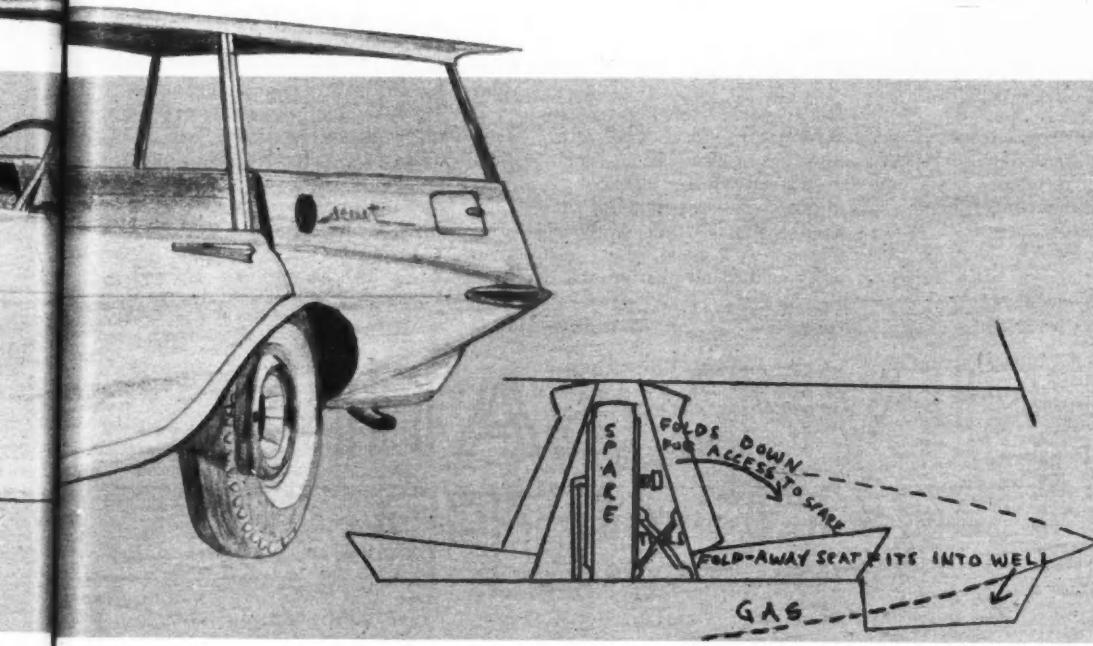
Individual
Dreamers
Encourage
Advance
Styling



SENIOR Designer Class



Ronald Simmons of Fayetteville, N. C. wins an Honorable Mention with this design of a 104-in.-wheelbase economy car. Powered by a V6 engine, it has a maximum of glass and a minimum of chrome. Headlights are fluorescent.



WINNER Unusual design for a 6-passenger utility station wagon wins Senior Class honors for 16-year-old Howard Itzkowitz of Brooklyn, N. Y. Called the "Scout," car has two seats placed back-to-back. Rear seat folds away into floor well to allow for cargo space. Other features include single headlights, no grillework, 15-in. wheels, high ground clearance, non-wrap-around windshield, air vents in fenders.



William F. Marks of West Lafayette, Ind., calls this model "The Desert Shark." It is 15 ins. long, 6 ins. wide and 4 ins. high. Headlights are behind the flaps in the hood.

DEAN JEFFRIES OF LYNWOOD, CALIF. is a mural artist who operates an automotive paint shop and can't begin to count his manual skills on the fingers of both hands. Since his shop adjoins George Barris' fantasy factory it's natural that he is no stranger to the cult of customizing. But Jeffries' own choice of a machine to modify is atypical — instead of gilding a barge he has polished a jewel.

He bought his Porsche coupe new, drove it from the showroom to his paint shop and immediately stripped it. Off came the paint to the bare metal; out came everything in the engine, passenger and luggage compartments; off came bumpers and front-end sheet metal.

The objective was to create a Porsche that would be "super" in every respect without any sacrifice of basic Porsche

beauty. Jeffries built a wire-basket template with the contours he wanted to see on his coupe and took the basket to Hollywood sheet-metal wizard Jack Sutton. Sutton rolled the new front end out of a single sheet of aluminum; when installed on the coupe, it gave the car an added eight inches in length and an imposing, unique appearance from many angles. He threw the bumpers away, rolled the body sheet metal under at the rear, re-coated the underside for sound insulation and added an underpan.

Jeffries re-did the tail lights, made them out of clear plastic which he then dyed red. He tossed all the stock chrome trim in Barris' direction but allowed one touch of functional-decorative chrome in the rear-deck grille which he built up using cold-rolled quarter-inch steel rod.

As a final touch to the exterior — and a definitely useful one — he constructed a very neat pair of roof vents, à la Mercedes 300-SL coupe.

The interior he had re-upholstered in pleated goat skin, each pleat being filled individually with foam rubber. He made his own push-pull knobs of hex-head bolts which he trimmed in a lathe and chromed. His idea for instrument panel finish was very unusual. He glued to the panel sheets of sign painter's silver leaf. He dulled its sheen and gave it a texture of swirls by twisting a ball of cotton against the soft silver. To protect it he sprayed it with clear lacquer; to give it a richer look he fogged the edges with black lacquer.

Jeffries made aluminum panels to cover all the surfaces exposed when

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SILVER-SATIN SLEEKSTER

"Instead of gilding a barge, polishing a jewel"



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doors are opened and used a drill press to give them a scrolled or "engine turned" finish. He made a similar panel to fit between engine and firewall; between the panel and firewall he put heavy padding for insulation against sound. What he did in the luggage compartment, except for additional insulation padding, is shown in one of the photos.

Silver-satin is the name Jeffries gives the finish on his coupe's exterior. It consists of a fine primary finish of coarse silver metallic lacquer. On top of this are two gallons of the crushed fish scales called pearlescence, at about \$100 per gallon. As a final touch the engine was brought up to full *rennsport* specification. The investment in time — seven months; in money — \$8000.

The result at the coupe's first showing:
Overall First.

Glistening from stem to stern, Dean Jeffries' Porsche represents the ultimate in customizing — a fine design to start with, plus good restyling taste. Engine has been converted to full RS specifications, beautified with chrome. Behind scrolled aluminum firewall is thick pad of sound insulation. Interior is finished in pleated goat skin over foam rubber. Instrument panel is covered with dull silver leaf. Entire luggage compartment is upholstered and padded. Front end is formed from a single aluminum sheet, adds 8 ins. to length. Lucas running lights were blended into the new design.

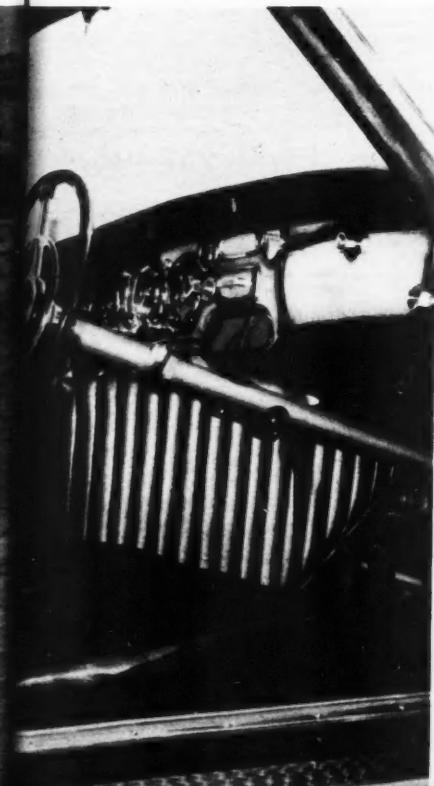
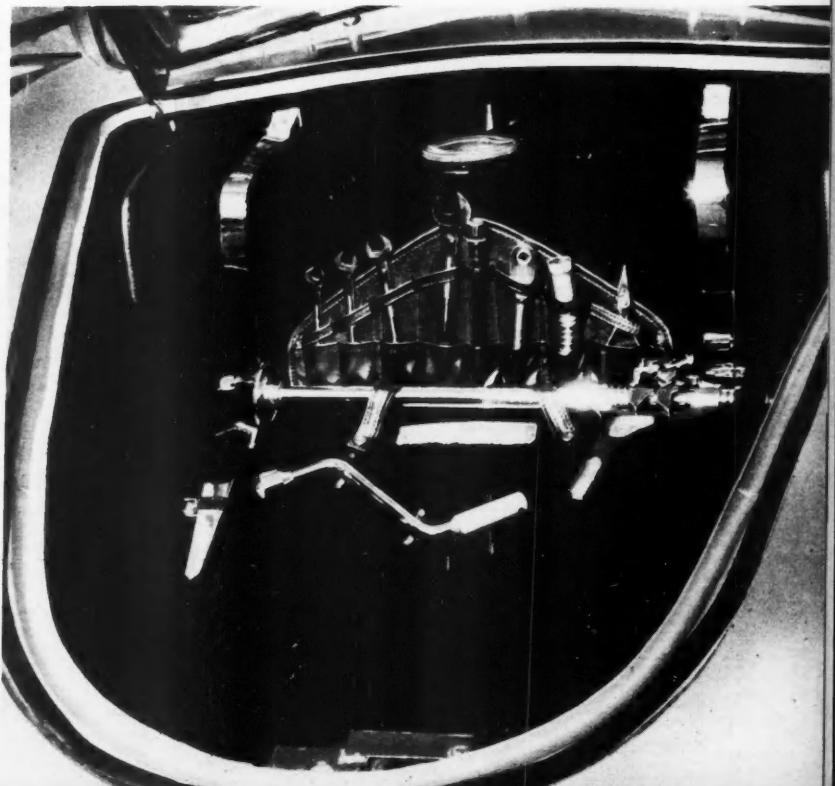
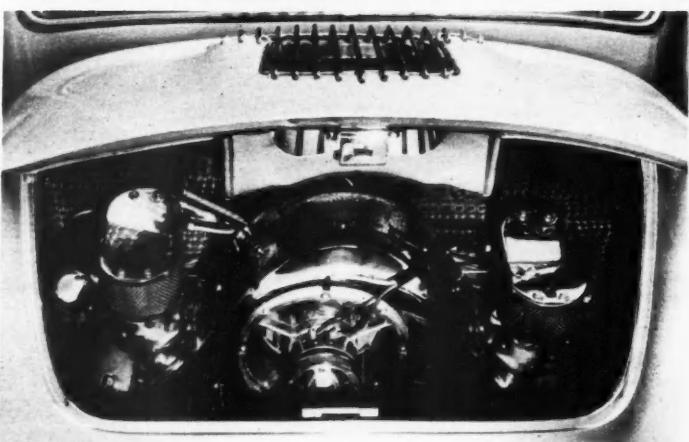
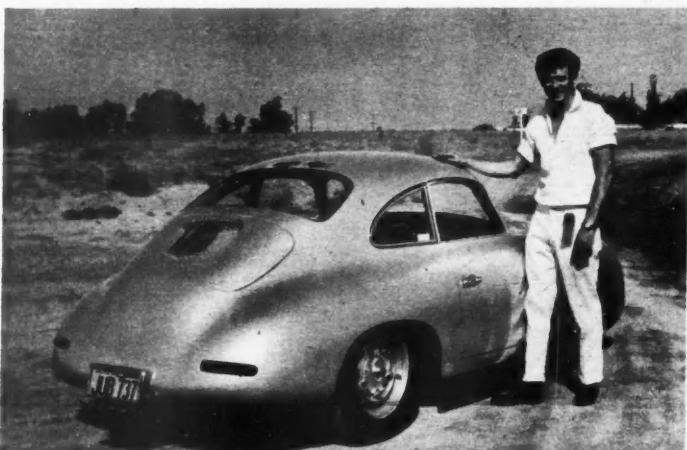




PHOTO STORY BY GÜNTHER MOLTER

THE SCIMITAR, introduced at the Geneva Auto Show, demonstrates a new approach in body design and manufacture—aluminum quarter-panels front and rear, bumpers, grilles, wheel discs, exterior and interior trim. A clear epoxy is the only covering desirable for the anodized rust-free metal.

The design concept is based on a plan by Brooks Stevens financed by Olin Aluminum. Three basic types of car are derived from a single tooling, with variations minor and only as to model.

There is a five-place hardtop convertible, satisfying the boulevard sportscar need for either open or closed transportation. The designer next considered the all-purpose car, and found the sedan type best answered all

the needs of the one-car family. The third type is a limited-volume three-way phaeton, which can be a fully-closed formal sedan, a town car with partially retracted roof, or an open convertible with both roofs retracted.

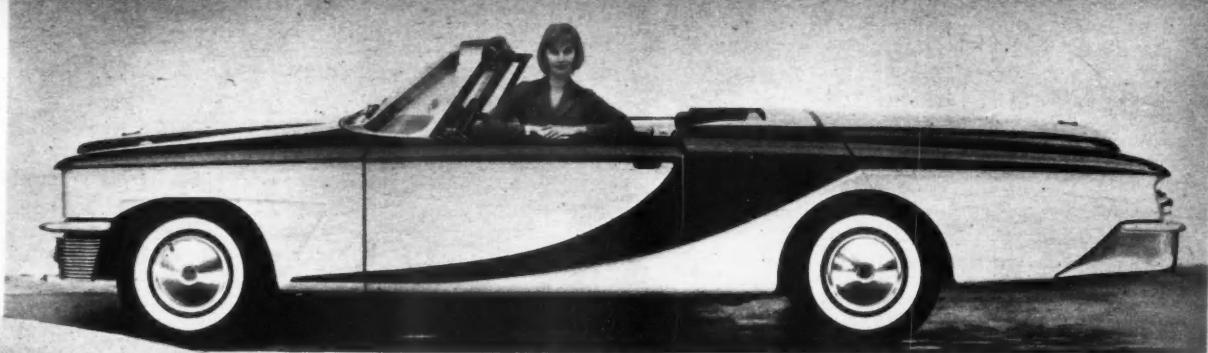
The Scimitar line is not just a futuristically inspired styling treatment. It's here, now, as a manufacturing concept of today.

Liberal use of aluminum in the body will effect substantial weight reductions. Maintenance and trim value alone justify consideration, aside from savings in fuel, ease of handling and road safety accruing from lightweight vehicles.

After the Geneva show, the Scimitar is U.S.A.-bound. Perhaps Detroit should take a look.

New Theme ...





All three models come from the same set of dies, with variations. Why the name? Brooks Stevens' styling theme, characterized by the V-front, uses the scimitar shape as a side-view styling motif.



Old Variations

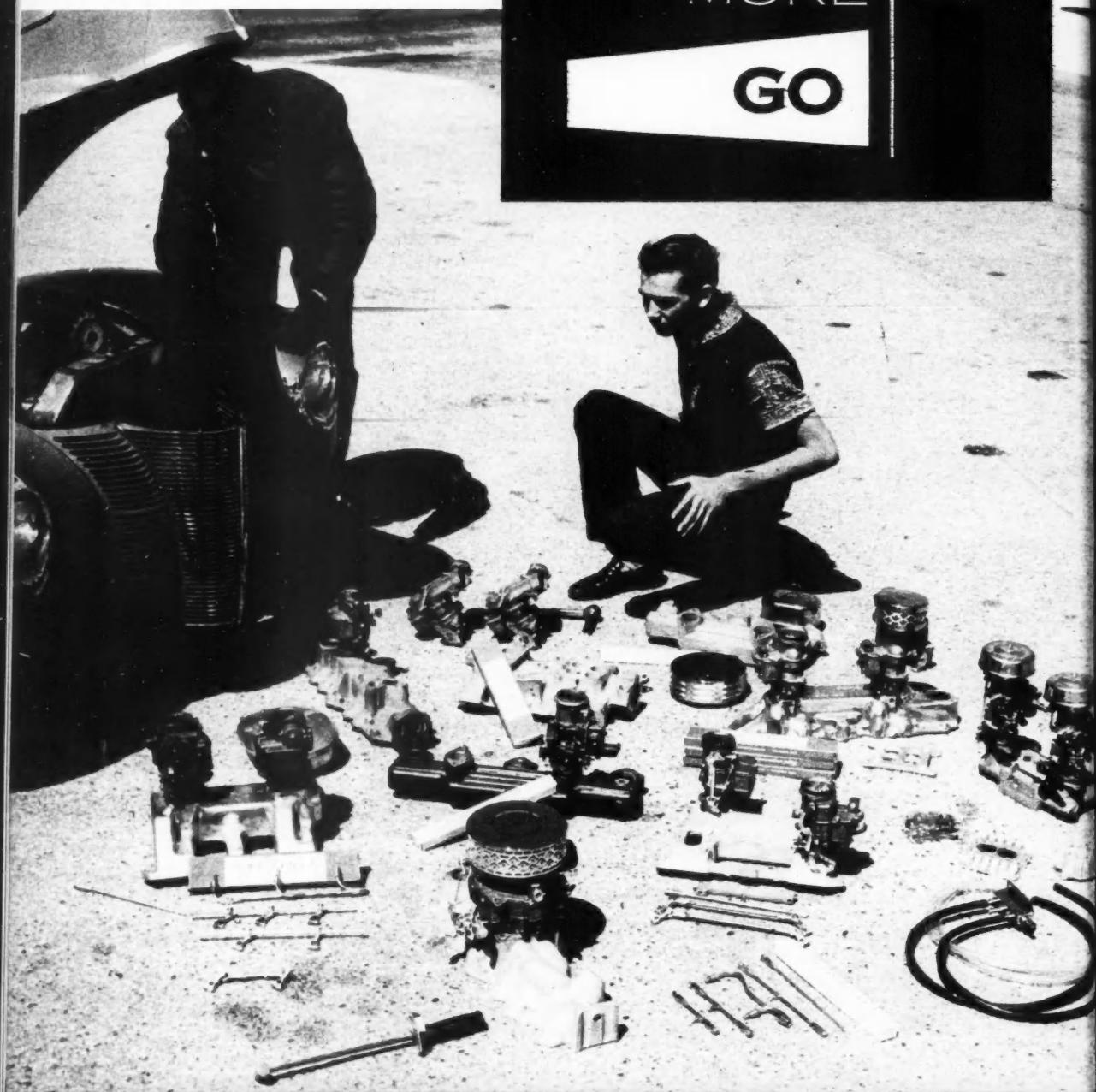


Though Fiat is spending money to promote its bread-and-butter cars, they still have an eye for the esthetic—far left, the convertible body by Ghia-Torino. Even Triumph, with their highly successful TR-3 and TR-4, had Vizuale mount a new coupe body, center left. Pinin Farina always has a design or two, like the Spider body fitted to the Alfa "disco volante" 3.5-liter chassis, left.

GETTING MORE

GO

No. 3
of a
series



Chirping tires off the line; sizzling top speed and brute power; intake air roaring through the throats, as high-speed "pots" cut in—that's multiple carburetion!



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DISPLAY

Multiple Carburetion

by Dean Parker

STICKING TWO CARBURETORS on an engine that had only one when you bought it is probably the oldest hop-up trick in the book. They were doing it 40 years ago on Model T's. In the last eight or 10 years—in the heat of the "horsepower race"—Detroit has tried about every carburetion trick in the hot rodders' book, and added a few new twists of its own.

And let's face it: The professional slide-risers have carried high-output carburetion refinement far beyond the wildest dreams of the backyard mechanic of 10 years ago. A modern Detroit four-barrel carburetor and manifold will give the breathing efficiency of two or three (or even four) small single carburetors at high speed—and then turn around and give the flexibility and fuel economy of one carburetor at low speed. The guy who would set out to try to improve on a late stock carburetion system has to think twice.

But it can be done. Any mass-produced machine is bound to have certain design compromises to adapt it to a wide market

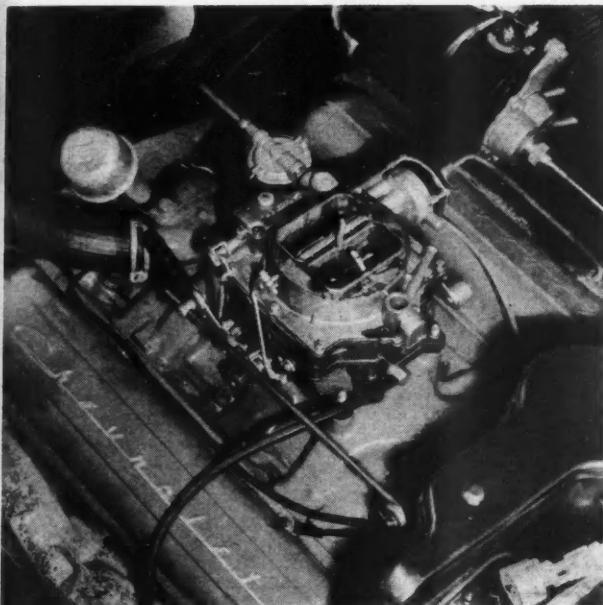
and a wide range of operating conditions. If you concentrate on "customizing" your carburetion system to exactly fit your particular driving conditions (and not the guy's in the next block), you may very well be able to come up with a more satisfactory all-around setup than the factory gave you. Here are some ideas.

CARBURETION FUNDAMENTALS Let's get one thing straight right off the bat: When we consider the "carburetion system" on an automobile engine, we are speaking of the air/fuel mixing device and the ductwork that carries the air/fuel mixture to the cylinders. Remember this: The most efficient and sensitive carburetor in the world is no good without a properly-designed intake manifold—and vice versa. By the same token, when considering carburetion modifications we should look upon the carburetors, manifold, throttle linkage, fuel pump, etc., as an integrated package, a working unit. Just call it the "fuel feed" system. Changes in one area

may require changes in another to get optimum performance—like a great increase in carb capacity might require bigger fuel lines to carry the additional gas. Everything has to be right.

So let's get down to basics. First, we have a carburetor that generates a combustible "working fluid" for the engine by mixing gasoline with air. This is done by passing the air through a necked-down throat (venturi) to create a slight vacuum that will draw a spray of gas out of a nozzle placed in the center of the throat. The carburetor is set up with a complex network of air bleeds, jet passages, economizer valves, power valves, accelerator pumps, vents, etc., so that the air/fuel ratio will be right over a wide range of operating conditions (from maybe 7 to 1 when accelerating suddenly, to 15 to 1 or so when cruising at low speed).

Actually a modern carburetor does a pretty good job of metering optimum air/fuel ratios over a range of operating conditions. The big problem is getting



FOR MILD STREET INCREASE A stock four-barrel does an excellent job, compromising between low-speed smoothness and economy, and high-speed punch. It does, however, favor low-end smoothness. The three two-barrel carbs installed on the Weiand collector-type manifold tend to push the compromise in the other direction. Hooked up by progressive linkage, up to half-throttle the engine runs on the center carb, best for low-end performance. At about 90

DISPLAY: NEWHOUSE AUTOMOTIVE INDUSTRIES. PHOTO: COLIN CREITZ.



mph, linkage engages fore and aft carbs, and all three open full at full-throttle. This Olds-Corvette conversion uses pressure regulator forward of built-up fuel block, both necessary to even out pressure to all "pots." This block was built up by owner; for conversions where time and facilities are limited, preassembled block offers big hoses, clamps and everything else needed for specific conversion.



STRAIGHT SIX ENGINES Even cammers like this 150-S Jaguar run better with three carbs than with two. Big SU's feed three siamesed ports through log with balance pipes; throttle linkage is positive, all three carbs open uniformly. Cold air box at left is performance booster. Cold air is denser, contains more oxygen, is equivalent to increasing displacement.

continued

equal ratios to all the cylinders through the manifold passages. Remember that we're working with a mixture of gasoline and air here—part of the gas in vapor form, well mixed with the air, and part in drops of various sizes. Air flow turbulence and centrifugal force effects, as this mixture travels through the manifold, are bound to cause some of these drops to separate out—so one cylinder will get a richer or leaner mixture ratio than another. This cuts horsepower.

Now there are several things we can do to improve this mixture distribution between cylinders. We can reduce carb venturi area so the suction on the fuel nozzle will be greater, thereby giving a more finely atomized spray into the manifold. (The smaller droplets vaporize and distribute easier than large drops.) We can increase the air velocity through the manifold passages by making them smaller, so there is less chance for the fuel drops to settle out. Or, in the case of eight-cylinder engines, we can use the duplex "180-degree" manifold layout.

Here we have two separate chambers in the manifold, each fed from separate sets of carb throats; the passages are laid out so that successively-firing cylinders draw from different chambers. (In other

GETTING MORE

GO

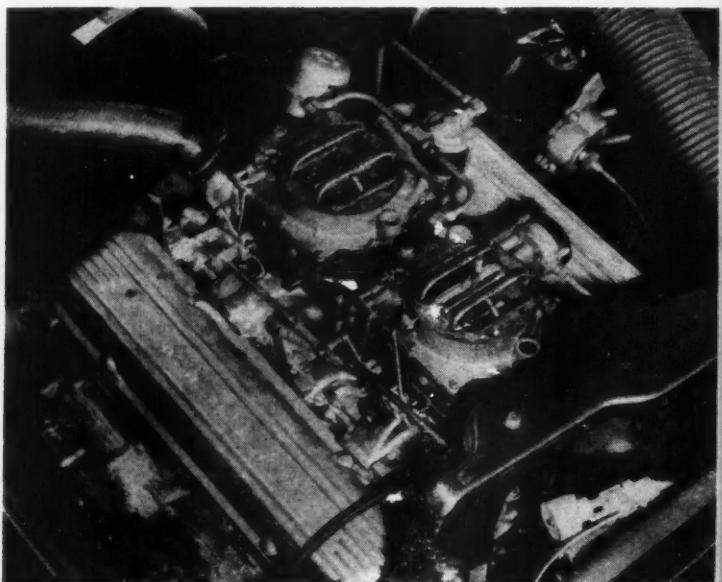
words, the suction impulses on each chamber are at 180-degree intervals of crankshaft rotation—thus the "180-degree" term.) This arrangement prevents overlapping suction strokes, which lets one cylinder rob mixture from another. All modern V8 manifolds are of the 180-degree layout—except certain Chrysler Corp. and Studebaker-Packard dual four-barrel setups. And, of course, your special "log" manifolds are not of the 180-degree principle. More on that later.

Now, unfortunately, most of these things we do to improve mixture distribution tend to *increase breathing restriction* at high speeds. Small venturi area, small manifold passages, and tortuous 180-degree duct layouts all act to choke off the air/fuel flow when the engine gets to winding up in the gears and starts to kick out some real horsepower. Furthermore, with the high manifold gas velocities at these high speeds, we don't need gimmicks like 180-degree ducts and small venturis to distribute the mixture evenly. So obviously we've got a killing compromise on our hands. We've got to com-

promise between a smooth, flexible low end, with lots of quick throttle response, good torque, and fuel economy—and a screaming, free-breathing top end with lots of horsepower on tap. It's that simple.

STRICTLY FOR THE STREET Speed shops offer such a bewildering array of special carburetion equipment—not to mention a fat lineup of optional factory stuff—that the poor guy who's just looking for a "little more pep" hardly knows where to start looking. An owner of almost any late V8 engine can choose from a variety of single two-throat manifolds, dual two-throats, single four-throats, dual four-throats, triple two-throats, quad two-throats (in line and side-by-side), plus a variety of four-, six-, and eight-carb log setups! There must be an answer.

Let's say you now have a single two-throat carb on your engine. The first thing to bear in mind is that any additional carburetion will not help performance below 2500 or 3000 rpm engine speed (about 60-70 mph in high gear). For low-end flexibility and fuel economy



BIG BOOST FOR STREET USE Depending on how far you want to go, a two four-barrel setup (available as option for most newer V8s) opens barrels progressively, helps high end, doesn't detract from low end. The ultimate for street is four two-barrels; any more is too complicated. This log-type mani-

the single carb is best—and any more carbs will only hurt it. If lots of torque and low-end response is what you like, don't boost carburetion. But if you'd like to add four or five mph to your top speed and whack one or 1½ seconds off your 0-60 mph time—and are willing to sacrifice a little low end to do it—then a boost in carburetion can be one of the simplest and most satisfying of the "bolt-ons."

For a mild increase in carburetion on a single-carb V8, your most logical choices would be three two-throat carbs or one four-throat. We feel the single four-throat looks better—for several reasons. It could be cheaper, since a cast iron factory manifold should cost at least \$40 less than an aluminum triple manifold, and three two-throat carbs will generally cost more than one four-throat. But, more important, the quad will be more flexible over a wide speed and power range.

Most late four-throat carbs have the rear (secondary) barrels opened—not by the throttle linkage, as in the old days—but by special butterfly valves controlled by air flow, either through venturi vacuum or the force of intake air hitting an offset counterbalanced plate. In simple terms this means that all four throats will not open, even when you press the foot pedal clear to the floor, until the engine speed builds up around 2000 or 2500 rpm where it can use the extra carburetion.

Furthermore, on late quad carbs the secondary venturis are made much larger than the primaries. The overall result is

that the engine breathes through two small venturis at all times at low speed—giving good torque, throttle response and fuel economy; then when the engine winds up into the higher rpm ranges at full throttle, all four barrels pop open to give all the air needed for 300 hp or more. It's pretty hard to beat this arrangement.

The "progressive" throttle linkages for multiple-carb setups are an attempt to duplicate this performance. These special linkages have their geometry designed to open one set of carb throttles at a faster rate than the others when you press the foot pedal. In the case of an in-line triple setup, the two end carbs stay closed until the throttles on the center carb are one-half to two-thirds open (depending on adjustment); then the end throttles open faster than the center for the rest of the pedal travel—and all three carbs reach wide-open at the same time.

This is a very neat gimmick. You can cruise at speeds up to 75 or 80 mph on just the center carb, getting good gas mileage and throttle response from the small venturi area, but still have all three carbs on tap for a full-throttle burst when you want it. The bug, of course, is that full pedal will open all three carbs wide even at very low speeds—so you can overcarbure and lose torque at the low end. Progressive throttle linkages are only a partial answer to the flexibility problem.

So now that we know the advantages and disadvantages of the four-barrel vs the multiple two-throat system, the next

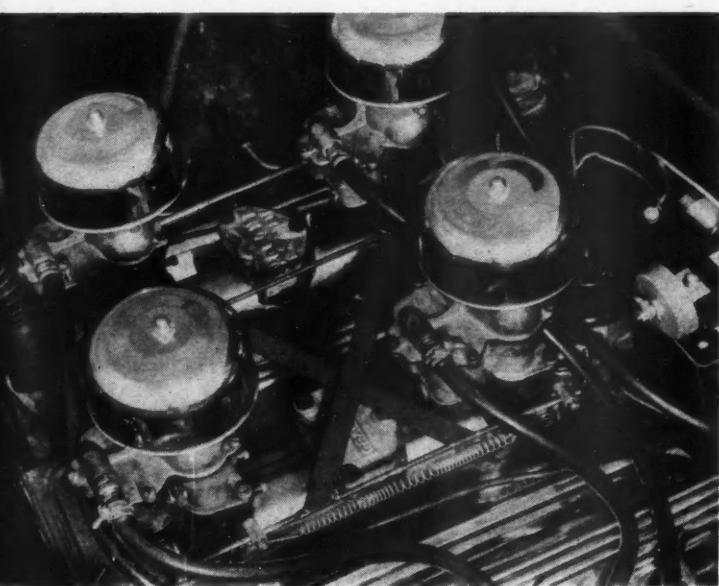
question is "Which system offers the most *brute horsepower*, or breathing, at the top end—assuming a guy is willing to sacrifice a little at the low end?" As long as we're talking about conventional 180-degree manifolds, the question pretty much boils down to a matter of *total venturi area*. In general, the average four-throat carb has somewhat less area than the average triple two-throat setup, so it should give a few less hp at the top. This is the price you pay for the superior low end. (It should be mentioned here that you quickly reach a range of "diminishing returns" when you increase venturi area. Two carbs might give 20 hp more than one carb, but three carbs might then give only 10 hp more than two; the increase from adding four carbs might be hardly measurable on a mild street engine.)

How about using a very large single four-throat, like those used on some late Olds, Lincoln, Mercury and Buick models? This is practical because all four-throat carbs of the last five years or so mount on the same standard SAE flange, having the same throttle bore centers and bolt pattern. You can bore out your manifold holes to match. If you have an early bolt pattern on your manifold, commercial adaptors are available. Same deal with two-throat carbs. Some of these real big jobs—as used on late Olds and Pontiac engines—have virtually as much venturi area as some four-barrel carbs. There are three or four basic bolt patterns for two-throat carbs, but commercial adaptors can be used to mount any carb on any manifold. Note: Don't go for these adaptors that mount two two-throats on a single four-barrel manifold. You don't gain anything but a complicated throttle linkage.

In general, then, we would recommend that any fellow wanting just a little more pep from a single two-throat V8 should consider a factory four-throat setup first. If this isn't enough he can consider three or four two-throats with progressive linkage . . . or in a few cases, like some late Chevy, Olds, Pontiac and Mercury models, factory dual-carb or triple-carb setups with progressive linkages can be had.

(Note: March '58 MOTOR TREND comparison-tested Corvettes, one of which had single-quad, another was identical except for a dual-quad setup. Respective ratings were 230 hp and 245 hp; 0-60 times were 9.2 sec. and 7.6 sec.; standing quarters were 17.4 sec. and 83 mph, and 15.9 sec. and 91.6 mph; top speeds were 103.1 mph and 112.0 mph.)

And how about the guy with the poor six-cylinder engine? Special manifolds to mount two or three single-throat carbs on various stock six blocks (Chevrolet, Ford, Plymouth, Dodge, Hudson, Studebaker) were plentiful years ago—some even from the factory. They are no longer in production, but a few big speed equipment distributors still carry a good supply. In general these multiple-carb setups will boost the horsepower of a stock six up



fold by Cragar is actually two logs—one on each side balancing each pair of carbs. Note how throttle linkage is welded with X-brace, keeping left and right banks of cylinders uniform. With this many "pots," engine needs lots of fuel, preferably electric pump. Stock fuel lines starve engine at high loading.

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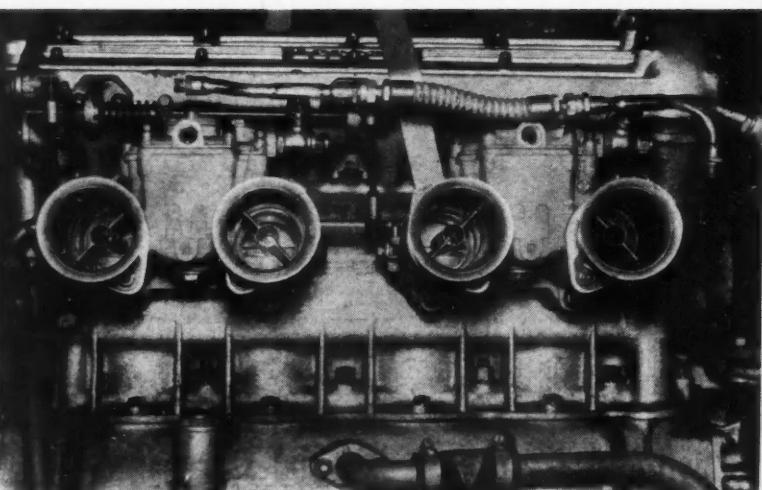
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to 15 per cent. A word of advice: Get a three-carb manifold and put relatively small carbs on it; two-carb manifolds never seem to work too well on a six, because of some distribution peculiarity.

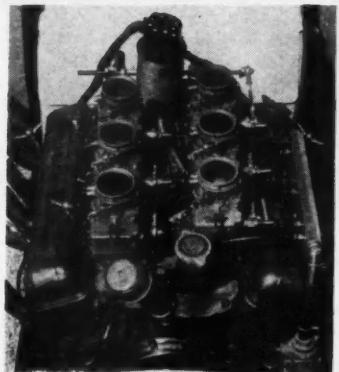
THE STREET-STRIP ENGINE Now we come up against the problem of the dragstrip enthusiast who wants to run his car in the Gas Coupe/Sedan class every Sunday and drive it to work all week. He wants the ultimate in horsepower; he's willing to sacrifice quite a little flexibility on the street to get it . . . but how far can he go with this? Goodness knows there's enough manifold equipment to choose from. There are the dual-quad setups (factory and special), four-carb 180-degree setups with the carbs placed inline or in a rectangle on the block, four-carb common-chamber manifolds (no 180-degree ducting), and the wide variety

of "log" manifolds for both six and V8.

These latter layouts for V8s have one log-shaped chamber on each bank, feeding all the cylinders on that bank, generally with a "balance tube" between each side to damp the suction impulses. These are available sometimes in one-piece castings or as two separate log castings with rubber tubes across the V for balance—and are available for four, six, and eight two-throat carbs. Actually the log setups were originally intended for competition only; but they looked so imposing on an engine that the rodders went for them like crazy—and now you see lots of cars running around on the streets with six-carb log setups. This is *not* recommended, even with progressive throttle linkage. The difference in top-end hp between four and six carbs is very small on most engines, and yet the low end suffers just the same. We still like dual quads or



COMPETITION Full-house dragster with six two-throat carbs on big-displacement V8 make it go fast, but it won't go slowly. Linkage is usually progressive, feeding fuel in accelerated ratio to different carbs. With Ferrari racers, four cylinders require four barrels. Weber twin-throats are precise and expensive (about \$300 each) but throttle slide recedes completely at full open, offering no restriction to intake air flow. Length of extension tubes is carefully calculated to "ram" fuel charge through at high rpm.



four two-throats on a 180-degree manifold—not a log—for any street-strip engine. Only if it's highly souped with 400 cubic inches or more could we see the six-carb log deal. And if it's a comparatively mild engine of 325 inches or less, probably one big four-barrel or three two-throats with progressive linkage will do just as well.

It might even be practical to make adaptations for completely different carburetion, stealing ideas from the imports. Since an engine has to run in a very narrow mixture band of 14:1 air/fuel ratio (too rich fouls the plugs, too lean causes detonation), carburetors without accelerator pumps—which literally dump in a shot of raw fuel—may be an answer. We're referring now to either Amal or SU carbs from England.

Both work very much like port fuel injection, and they are just as much an injection system as some of the simplified injection systems on the market. Neither has an accelerator pump. When the throttle of an SU is opened, engine vacuum raises a plunger which raises a tapered needle off its seat, opening the fuel supply in proportion to the engine's ability to use it. With Amals, the plunger is raised by throttle linkage.

Thus it is possible to overcarburete an engine without any of the evils that normally accompany overcarburetion. The Volvo (Sweden) is an excellent example of an automobile with a 91-cu.-in. engine and the "go" of a big car. The reason: it's just as overcarbureted as they come (two 1½-inch carbs for four cylinders), but the carburetors are SU's.

The famous Weber carburetors are an example of carburetion carried to the ultimate. They're expensive (about \$350), but if you're going to race . . .

The Weber is about as precise a carburetor as can be made. There are no butterflies. At full open, that's what you get. The throttle slide moves completely out of the air stream, providing a polished tube for air to "ram" into the cylinders. At half throttle, the fuel supply is exactly half open, controlled through rigid ball-bearing linkage. And there is usually one throat of a Weber for each cylinder.

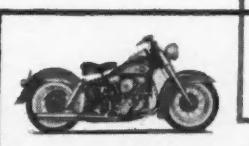
SETTING UP THE SYSTEM After you've decided on your general carb and manifold layout you've still got to set up the system. For instance, how about carb jetting? The usual practice is to use slightly richer main metering jets or rods when going to multiple carbs, and then reducing the accelerating pump strokes down (or maybe cutting out the pumps on all but one carb). But these refinements are by no means necessary for a satisfactory performance increase. If you can't get an expert to set up your multiple carbs you'd be better off leaving the jetting stock. And then, of course, refinements like a snug, properly-adjusted throttle linkage (preferably the ball-joint or ball-bearing type),

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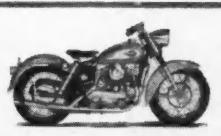


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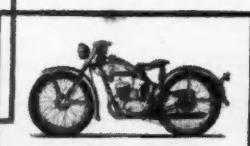
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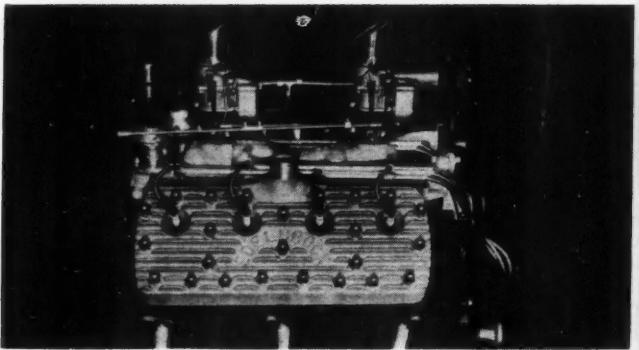
proper idle adjustment, checking to see that the throttle butterflies seat firmly in the throttle bores, etc., are obvious.

The question of the fuel pump always comes up. To begin with you *should* put a fuel pressure gauge on your car when you increase the carburetion, with the gauge tapped in as close to the carbs as practical; a steady pressure of three or four pounds under wide-open conditions (after a few seconds) will tell you instantly that you have adequate pump capacity and fuel line capacity. You can probably use your stock fuel pump without changes. These are designed with a capacity of one-

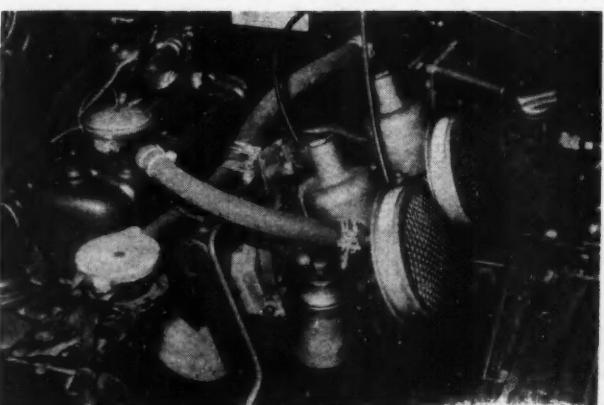
Electric fuel pumps? Their main advantage is that they are best mounted at the rear next to the tank (they don't pull

well, but they push hard), so the full fuel line is under pressure and vapor lock problems are eliminated. But a word of caution: Even the larger electric pumps are rated at around 30 gallons an hour—and this is barely enough to feed a late 300-hp-plus stock engine. You will likely need two electrics *connected in parallel* for any really hairy combination. And don't forget that pressure gauge!

Stock fuel lines of $\frac{1}{4}$ -inch outside diameter are adequate for engines developing up to 250 hp; but for the bigger stuff we prefer the $\frac{5}{16}$ or $\frac{3}{8}$ o.d. lines. (You'd be surprised how much pressure drop you get in a short length of fuel line when you try to pour 30 or 40 gallons an hour through it.) If you have multiple carbs there is a chance that differences in fuel line length, diameter, or curve restrictions will vary the available pressure at each



OVERCARBURETION In the heyday of the flathead Ford, two carbs were par for road, three made it a track machine. Today flatheads use anywhere from one to six. Like the above, two carbs and Fenton manifold still make a potent stoplight jumper. The four-cylinder Austin can handle carbs and manifold as big as the block, produce 55 hp to the wheels from 57 cu. in. SU carbs have no accelerator pump, work like port injection: engine can be overcarbureted to favor high rpm with few penalties at low speed.



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Car control is the surest protection against driving dangers, irritations and expense. The Traction-Master Co. specializes in the manufacture and distribution of products designed and engineered to give you better control of all the horsepower under your hood!

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Ready To Install



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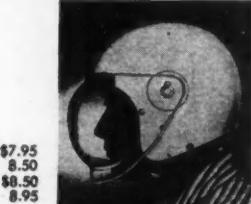
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WITH VISOR - \$38.50
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continued from page 56

carb. The best answer here is a fuel block kit. This is a small chamber that receives the fuel flow from the pump at one end and has openings along its length for a separate line to each carb. This damps out surges in the pump flow and assures even pressure at all carbs. Fuel lines from the block to carbs are generally quality neoprene or vinyl plastic tubes. These kits are highly recommended.

And that about covers it. Main thing to remember is that one horsepower means so much fuel burned in one minute. If you don't have the carburetion to get the fuel to the cylinders, you'll never get the horsepower out at the flywheel end!

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*There are many other less renowned but equally reliable manufacturers who market speed equipment under their own name. It is impossible to list them all. We list the above because of their reputation for original research in developing power equipment, verified through the experience of the technical staffs of Petersen Publishing Co.

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| Progressive throttle linkage..... | 12- 25 |
| Fuel block kits, (hose, block, clamps, etc.)..... | 10- 20 |
| Electric fuel pump..... | 15- 25 |

next month . . .

FUEL INJECTION



Questions and Answers

What is it?—Best Car Buys is a listing service . . . a publication which is sent you every six weeks. It is an organized effort to bring to you from hundreds of sources throughout the United States a list of new and used cars that you may purchase at dealers wholesale or below . . . it is an organized effort to screen from thousands of current wholesale buys the very best ones and present them to you in published form, describing the car . . . the equipment . . . the price . . . the address of the seller and complete instructions for buying wholesale.

But how can I buy wholesale . . . I am not a dealer! True, many of these cars can be bought only through a licensed dealer so we have arranged for a licensed dealer to buy them for you. You will be given a registered number and card which will be submitted each time you wish to make a purchase . . . it's as simple as that.

What type of cars will I be able to buy wholesale? Practically every make and model . . . NEW and USED . . . American and Foreign . . . New cars ordered to your specifications . . . Used cars from the 1950 models through the 1958's . . . sedans, hardtops, wagons, convertibles, trucks, even cars from overseas . . . direct to you.

Where do these cars come from? The giant auto wholesalers who sell large volumes of cars to the used car dealers . . . private company fleets who sell every one or two years . . . distressed new and used car dealers who must reduce inventory . . . car leasing agencies . . . car rental agencies who may sell a car after four months of use but usually after ten to twelve months. Federal, State, County and City agencies who dispose of cars by bid . . . fleet brokers.

What is wrong with these cars . . . they are so cheap? What at first may seem like a gimmick can be explained if you understand the sound business principle behind these prices. First of all, remember these are not retail prices, in fact many are below the average wholesale and are exceptional buys for the car dealer as well as for you. These cars are normally sold only to the car dealer for resale on his lot and if you didn't know how and where to buy direct you might end up buying one of these same cars from his lot and be paying him a profit instead of making one for yourself. The fact that you can buy some of these cars below their actual wholesale value is not because they are wrecked or damaged but because they are usually fleet cars and are sold under a different system than the buying and selling of single units.

As an example let us examine a typical situation where the fleet user is an insurance company who buys 300 cars each year. To begin with they buy from the dealer who gives them the lowest bid . . . these prices are usually \$25.00 to \$50.00 over the dealers wholesale. After the company has purchased these cars they set up a tax depreciation on each car which will allow them to sell this car at the end of one or two years for a very small sum compared to its current market value yet justify this loss or depreciation from a tax standpoint . . . this is the first explanation. When the company is ready to buy another fleet the dealer who sells the new cars is rarely in a financial position or willing to take 300 used cars in trade on a gross profit of \$25.00 a car. Therefore, the insurance company must dispose of their own cars and this is usually done through the giant middleman or fleet broker who will bid and buy the entire fleet. Since his success is dependent on buying and selling as fast as possible . . . so that he can release his working capital for future bids . . . he sells price . . . for he knows that this is the only way he can unload these cars fast enough . . . his outlook on the car market is how much can he make on his investment in how short a time . . . not what the market potential is for a single car. His formula is simple . . . he divides the total number of cars into total price he pays the insurance company and adds a profit suitable for his risk investment and this is the price all 300 cars will be sold for . . . a very democratic action since among these three hundred cars some may be driven 9000 miles while others may be driven 40,000. You see it will be possible for you to benefit tremendously from this system.

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| 1957 | FORDS... | \$550 |
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| 1957 | DODGES.. | \$700 |
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Approximately 1500 of these are available with standard or automatic transmissions, some have power steering, all 1957 Fords, Chevs, Plymouths are guaranteed not to have bad transmissions, bent chassis, broken windows, major body dents and all are in good running condition. Price is at point of sale. Delivery charge depends on distance, maximum approximately \$75. Cars may be inspected by yourself or an appointed mechanic. Prices taken from a current issue of Best Car Buys at the time this advertisement was prepared.

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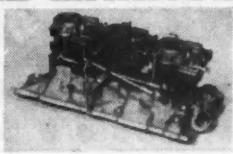
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TIRE TESTING AT 190 MPH!

continued from page 23

ideal. But there isn't any ideal. It's a compromise.

"Generally, the harder we make a tire the cooler it will run. But if you make it too hard it won't stick. And there must be some wear—it actually helps keep temperature down," said Hershey. "Another way to keep temperatures low is to keep tire bulk down. In other words make it as thin as you dare for safety."

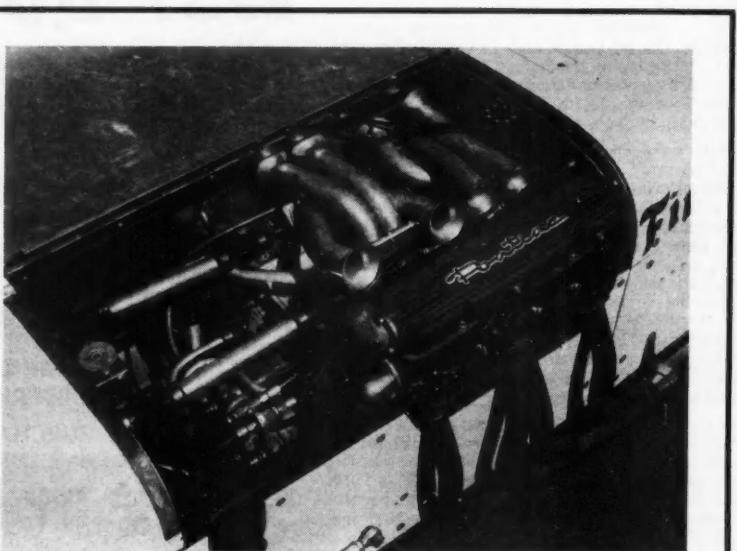
At this point the Indy roadster was rolled to the pits and Firestone's '59 Pontiac stock car (they also have a '58) was fired up. Driver Paul Goldsmith revved it to a gutty roar and eased away for a warm-up lap. After getting the feel of the 2½-mile Daytona tri-oval he turned on a hot lap—142 mph, a speed which would earn a front position in any of the stock car events on that course. And this with a passenger aboard—Ray Nichels, who prepares and maintains Firestone's racing Pontiacs.

We wondered how hot these test tires were running. "Can't tell you," smiled Hershey. "That information comes under the

heading of trade secret. And it wouldn't mean much unless you knew the exact rubber compound involved. I can say this. We consider 250° the maximum temperature for sustained operation and this applies to all tires—racing, truck, automobile, aircraft. A tire can take more, say 300°, for short bursts but that's about the limit."

Hershey pointed out that heat becomes critical when temperatures approach those that were used in the mold during the curing process, about 320 to 330°. Get into that range and the rubber wants to revert back to its original form. Obviously this means big trouble. The temperature of the road surface works in almost direct relationship to help build up tire heat, one reason Firestone engineers prefer a hot sunny day on which to conduct their tests.

We wondered just how important tread patterns are to tire construction. It seemed to us that most of them have been tried by now from the original "Non Skid" imprinted around tires to today's fancy oval-track racing designs which combine a partial slick with a tread. "We're still learning a little about tread patterns," admitted Hershey, "although we know just about what each will do at this point. Aside from some obviously sticking better than others, we utilize tread as an aid in cooling." Hershey



FUEL-INJECTED PONTIAC ENGINE IS MOUNTED IN INDIANAPOLIS CHASSIS.

THE PONTIAC ENGINE'S reliability, sturdiness and adaptability are graphically illustrated in Firestone's tire testing race car. Offset-mounted in a Kurtis Indianapolis roadster, the engine was built and is maintained by Ray Nichels of Nichels Engineering, Highland, Ind. Nichels has completed extensive modifications to the 370-cubic-inch powerplant including Hilborn fuel injection, 13 to 1 compression ratio, Forged-True pistons, a dry sump lubrication system which holds 10 gallons of oil in the reservoir, Meyer and Drake oil pump, Hunt magneto, and lightweight mag-

nesium parts in areas which include gear train cover and the dry sump system.

Nichels says that the power starts to come in well at 5000 rpm; in the test program they limit engine revs to 5600 for best engine reliability. At this point the engine is developing somewhere between 450 and 475 hp. Using 5600 rpm as a redline, test driver Jim Rathmann was able to lap the Daytona Speedway consistently at speeds between 170 and slightly over 172 mph, indicating that there are several more miles per hour on demand. Nichels will custom-build similar engines on order.

explained that a classic example is Firestone's Bonneville tire where the "tread" never contacts the road surface. This tread is a series of diagonal grooves on both sides of the tire where their main function is cooling.

We discovered other tire problems which keep the engineers busy but are mostly beyond the working knowledge of the layman. Hershey's men are vitally concerned with gauge (or ply) and cord angle when it comes to building a cool running tire. But these are areas where we have to rely on the manufacturer's skill.

Goldsmith rolled by along the straight at a steady 155 mph in his "stock" Pontiac past our vantage point in the pits. (It is stock within the definition of racing regulations which allow certain engine modifications and somewhat radical changes to suspension and braking.) He received the come-in sign and the test crew got ready. The instant the wheels stopped rolling a technician pressed a thin rod to the tread surface of each tire, actuating an electric thermometer. Hershey's confident smile as he checked the figures told us more than revealing the exact temperatures would have done. It was apparent that the compounds they were trying were the right ones. The car was lifted and power wrenches chattered away while a new set of wheels and tires were installed for still another test.

The sun was low and the track cooling as Goldsmith pulled out for a final series of test laps. As he toured the huge course I examined the tires just removed from his car. They didn't look as though they would be useful for anything other than what they were—racing at Daytona. Does Firestone go to all this effort, just for racing? Hershey answered my query: "Yes, racing is important but we get a great deal more than that out of our program. Current passenger car speeds sustained along this country's turnpikes build up temperatures equivalent to racing conditions. A heavy truck at a steady 60 mph, for example, may produce conditions of wear and heat nearly identical to a race car."

"We get a wealth of information from racing for our aircraft tire program. With jets landing at over 200 mph it becomes fairly obvious that these aren't far removed from racing tires," said Hershey. He revealed that in the past they have used compounds developed for Indianapolis without change in aircraft tires.

Hershey reflected a moment, watching the test car power into the deepening shadows of the west bank. "The performance data we are obtaining here under severe conditions is applied directly to our passenger tires. If we can provide that extra margin of safety which will prevent tire failure, maybe save a life, then it's worth all the effort."

NEW WORLD RECORDS have been set in the stock and speedway class on this high-banked course, but two of the speedway class record-holders met death within days of their accomplishments. Track officials believe that the 2½-mile tri-oval is engineered to attain higher speeds with more safety, but have cancelled future events for speedway-type machines until the designers and engineers of these cars become more familiar with the wind effect problems in the 200-mph range on high-banked curves. Wind tunnel testing might be the solution.

/MT

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2 New Cars fr



MORRIS OXFORD

The Morris Oxford series V is a new four-door sedan with body styled by Pinin Farina. Engine details of the 1500cc four-cylinder powerplant and the body are almost identical with the Austin A-55, but the price is slightly higher. Bench-type seat is made with foam rubber on a Pirelli resilient webbing suspended hammock-fashion from top of seat back to lower front edge. Mechanical changes include larger brakes than on the previous model, front coils instead of torsion bars.



RILEY 4/68

The influence of Pinin Farina will soon be seen in the styles of more of the world's cars as the new Riley 4/68 makes its appearance with a five-passenger body styled by

rs from BMC



the famous Italian. There is little to identify this car with the Rileys of old, as the new car is now very hard to distinguish from the new MG Magnette. Carpeted floors, leather seats, and walnut dash and interior trim give the car a real luxury finish comparable to much higher priced saloon sedans.

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*This price is calculated on a basis of two people buying an Austin Healey Sprite, flying BOAC Economy Class from Chicago, sharing a twin room with bath throughout tour. Other sports cars and other tour rates available. This is just one of the European Tours BOAC has to offer. If you would like the 1959 BOAC Tour folder, please indicate in the coupon. For full information, mail the coupon below:

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Is the Diesel THE COMING ECONOMY CAR?

continued from page 33

escorted us to the city limits . . . A disgruntled San Francisco policeman allowed five minutes to move the car off its sidewalk display point, which caused a minor panic as someone had locked the keys inside . . . Arizona made us buy a special permit for fuel as diesel stations collect no road tax and the state wants it anyhow . . . "Boy, if this keeps up you'll put us out of business," said a Kansas City service station owner after replacing the six gallons of fuel we'd used to cover 253 miles . . . The mayor of Peoria Heights enjoyed his ride but thought the car a little slow . . . In Chicago the sun came out and wind went away during our two-day stay in town . . . Detroit snowed us out of town (they'll be sorry when diesels replace gas-happy V8s) . . . And Toledo turned out en masse to see the MT car on display . . . Pittsburgh was unimpressed and Philadelphia had so much rain the dealer sold only four cars all day. We arrived in New York on time, displayed the car to a waiting group of automotive people, then left for a quiet German dinner at Luchow's.

When our figures were added, divided and averaged, the results of MOTOR TREND's test are impressive. We'd driven a 2680-pound car, with 400 pounds of passengers and 200 pounds of luggage, from Seattle to New York, on a route totaling 5122 miles, for only \$32.27. No repairs, no adjustments. Average speed was 41.14 miles per hour, about right if you keep in mind we had the speedometer pegged at 50 most of the time. And miles per gallon were an amazing 41.04. This figures to 1/10ths of one cent per mile.

Wise guys may question our test methods. So for their benefit, here's how. Each morning the fuel tank was filled to a mark inside the filler neck. Then while driving at a steady 50 miles an hour (where traffic and law permitted) we'd cover one leg of the trip. On arriving at the overnight stop we'd find a diesel station, level the car and fill to the same mark inside the filler neck. This provided our point-to-point mileage figures. Miles per hour were computed from a stopwatch which ran as long as the car ran; with time out for eats, long trains and traffic delays. Speedometer divided by watch gave miles per hour. Tires were at recommended pressures, and engine oil the proper grade. We played the radio and used the heater when necessary, making no effort to stretch fuel mileage by reducing generator load. We did not coast down hills.

You might be interested to know that external differences between our car and 190s with gasoline engines are limited to use of the initial "D" behind an identifying 190 on the trunk lid. Inside the only difference is a starter knob and glow plug indicator on the dash. But under the hood there's plenty of proof it's a diesel. An injection pump on the left lies on the nozzle side of the block, which provides short injection pipes of equal length for accurate metering. There's even an air control unit which looks like a carburetor, but isn't. When you can't find spark plugs, distributor or coil, you'll be convinced it's a diesel. However, the crankcase as well as cylinder head bore formation are almost identical for both gas and diesel 190s which makes for low-cost production and a plentiful supply of spare parts.

Starting a Mercedes diesel is somewhat different from punching a gas engine to life. First you pull the starter knob out past the first notch, to the second notch. In this position it passes current to "glow" plugs, of which there is one in each cylinder. Each plug has a heater element (somewhat like a

cigarette lighter) which glows and heats the pre-chamber. After 10 seconds of glowing (up to 30 seconds if it is near zero outside) you notice a tell-tale light in the panel. Pull the starter knob to the third notch and the engine fires. Let loose of the knob and it springs to the "Run" notch. Nice part of the whole operation is that warm engines need no glowing and start as quickly as the best gas engine.

When first started, a diesel sounds like dishes in a washing machine. But don't panic. Set the idle control (it's on the dash) and dive for low gear. Acceleration will be something less than head-snapping, and is best compared to a 1952 Chevrolet sedan. This means tires (you'll burn no rubber) and drivelines last longer. There's no trouble in keeping ahead of busses, big trucks and bicycles. As all four gears of the 190-D are synchromeshed, make use of the red shift marks on the speedometer and wind the engine tight before shifting up. With this technique you'll easily keep up with the majority of traffic.

Highway traveling is pretty fine. The 190's four-wheel independent suspension (coils and wishbones in front, coils and low-pivot-point swing axle in the rear) produce a floating ride that at first seems a bit uncertain in the corners. But once you get used to being comfortable while rounding a sharp corner, you'll find it almost impossible to unglue the tires at any reasonable speed. Acceleration to 60 is fairly rapid, keeping in mind you have 55 horsepower—not 300. Sixty to 70 is a little slower and reaching 80 takes a good run.

I kept notes on the questions asked me by Mercedes fans as we traveled across the nation, of which nine seemed to pop up more often than any others. Here they are, in order of frequency:

How does the 190-D differ from the 180-D?

It's much quieter, has an overhead cam engine, more displacement, more power, is faster, yet provides fuel mileage only slightly less than the somewhat sluggish 180-D. Body and chassis are the same.

Is a diesel-engined car noisy?

It sounds like an old Chevy, with loose rods and tappets, especially if you stick your head under the hood. However, driving is a totally different story. In the 190-D, at 50 miles an hour, wind around the windwings was the loudest noise.

Is it hard to get diesel fuel?

Nope. Follow the same trick most travelers use to get good coffee. Watch for a collection of trucks near a cafe and service station. In one you find the coffee, in the other diesel fuel. Besides, you can travel 600 miles on one tankful.

What's the difference between diesel fuels?

Premium fuels (they cost the most) are of high volatility, burn easily and have a low pour point (remain fluid in cold weather), which makes them suitable for frequent stop-and-start truck operation where an absolute minimum of smoke is permitted. General Purpose (No. 2) fuels are just that. Of moderate cost, they will do a good job in the 190-D, are what the factory recommends, and cost less per gallon. Once in a while you may be offered a third fuel which is even cheaper than the previous two. It is formulated for use in huge slow-running stationary engines, and though it will work in a Mercedes, low purity standards are one good reason for not using it in an automobile.

Is such a small (?) car comfortable?

It may be small on the outside, but inside there's plenty of room for this six-foot-two frame. I consider the 190-D more comfortable than 95 per cent of the cars I've tested in the past two years.

How much oil do you burn?

We burned exactly one gallon of fuel oil for every hour of driving during the 5122-mile run. A half quart of crankcase oil was missing at one drain period which was 1100 miles overdue. Reason enough for the oil level to drop.

Why is the crankcase oil so dirty?

Good question. It seems that diesel fuel is not as clean-burning as gasoline and accordingly more combustion products slip past piston rings into the crankcase. Because the Mercedes oil pump moves nearly twice the oil of most pumps, the dirt remains suspended in the rapidly circulating oil instead of sticking to crankcase walls. Drain the oil, change the filter and you've cleaned the engine.

Can I pull a trailer with a 190-D?

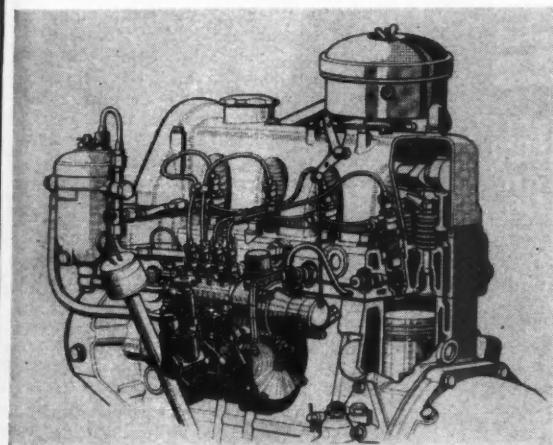
You sure can. The factory has an instruction sheet to help you produce a hitch that matches attachment points already

in the underframe. They suggest a limit of 2000 pounds for a braked trailer, 1000 pounds if no trailer brakes.

Should I buy this car?

Not necessarily. It is a specialized means of transportation for the man (or woman) who travels long distances and wants complete comfort with economy. I doubt if anyone would quarrel with the lush comfort of a 190-D after driving it as far as I have. And before we get to fuel economy there's the matter of money saved on spark plugs and points that need never be bought, plus M-B diesel engines that run 150,000 to 200,000 miles between overhauls. I talked with a Borg-Warner executive on the subject of fuel economy obtained from his 180-D sedan. He's driven a total of 22,380 miles at a cost of \$115.02 for fuel, while enjoying 38.04 miles per gallon of Chicago driving. Total operational cost for this car figures out to one-half cent per mile—which includes maintenance, insurance, depreciation and fuel.

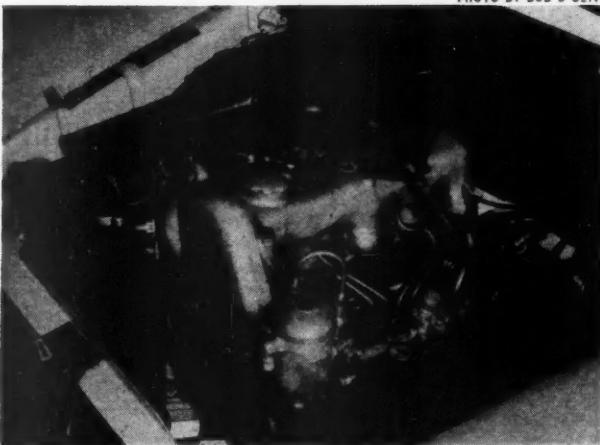
If, like many travelers, this man is paid eight cents a mile by his employer . . . it seems he has pocketed \$671.40 for a year of dieseling. Reason enough for high-mileage drivers to take a long hard look at their present gas-gulping transportation. A comparison with diesel power could point the way toward a raise in pay without a single memo to the boss. /MT



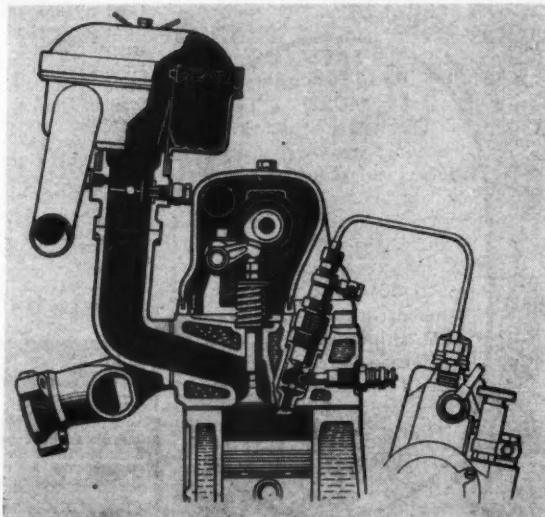
(Above) Four-piston Bosch injection pump is mounted on fuel nozzle side of the engine to gain shorter lines to pre-chambers.

High fuel pressures at this point cause lines to expand, and they must be of equal length to insure precise metering.

Injection pistons are lubricated by the fuel they pump, but camshaft that drives them has its own tiny crankcase.



(Above right) Overhead-cam engine looks like a fuel-injected gasoline-powered 190 but absence of coil, distributor and plugs is tip-off to diesel operation.



(Right) Fuel under 1700 pounds pressure enters pre-chamber and mixes with the hot compressed air at the precise moment for combustion. The glow plug, used only for cold starting, is located just below injection nozzle.

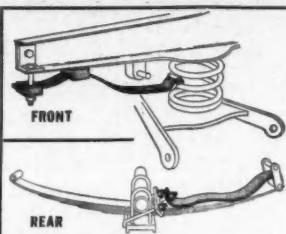
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CORVETTE

continued from page 29

MOTOR TREND had a chance here to launch a rather interesting experiment. We have watched these young drivers do fantastic things with fast accelerating cars at the dragstrips, but were often concerned about the other phases of their fast driving of stockers on the highway.

The owner of this Corvette, Ernie Landel, is 20 years old and works in the container manufacturing plant managed by his father. Every dime Ernie makes goes into automobiles, and drag racing is just a way of preparing himself for his real ambition—road racing. True, he drives fast on occasion on the highway, but being a law-abiding motorist, he never really goes as hard as is necessary in competition. Here was Riverside Raceway, an internationally known road-racing circuit that had seen some of the best drivers in the business learn a new respect for this type of racing. And . . . here was this young eager driver with a hot car and the course all to himself. How would he handle braking and cornering problems?

A few laps under MOTOR TREND's supervision to point out the tricky turns, the cut-off markers, and how to down-shift to conserve brakes and aid cornering—and Ernie was turned loose on his own. Five erratic laps later he pulled into the pits, excited and amazed. "I had no idea that a car had to do anything but go . . ." So we waved him on for some more practice despite some concern he expressed about the locked rear end and slick-type tires. These were actually aiding him to reduce lap times in the corners as the 4.11 rear end kept straightaway speeds down to about 130 mph. By the time he decided to quit, due to depletion of fuel (gas consumption about five miles per gallon), the tire dust that seeped up from behind the seats was well imbedded in the rivets of perspiration running down from beneath his crash helmet.

Here was a real happy young man, but his conversation, normally dominated by such things as "wheelspin," "quarter-mile," etc., suddenly became full of "drift," "downshift," "braking," "cut-off points," "SS conversion kits for suspension," "steering," and "wheel position." In plain words, he now not only wants to go, but stop and turn, as well. We think we made our point.

A few things in review about such conversions. No one is ever satisfied with such modifications unless he can use them to the fullest. Locked rear ends and slicks have certain limitations for street use such as the need to make wide turns and be content with rapid tire wear. To be able to install this combination easily for drag racing has very definite advantages, and Ernie intends to revert to conventional rear end for street use. While this engine does behave well in traffic, it is very hard to start and for assurance that there will be enough current always available for this purpose, two batteries should be installed. To be certain of a plentiful fuel supply, an extra electric pump is used at the tank that pumps to the regular mechanical engine pump. Only top premium gasoline works well in this engine and around town the car has a hard time getting better than 8.5 miles per gallon, but it sure does go-o-o-o. . .

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Use Tests | OF NEW PRODUCTS

The reports below are based on actual tests by MOTOR TREND'S staff, and when necessary, on observation and control of outside test facilities and laboratory analysis. MOTOR TREND'S Seal of Approval, appearing with the test report or in any future advertising of the specific item tested by us, means that the product has lived up to claims made by the manufacturer.

Fenton muffler gives "lifetime of car" guarantee

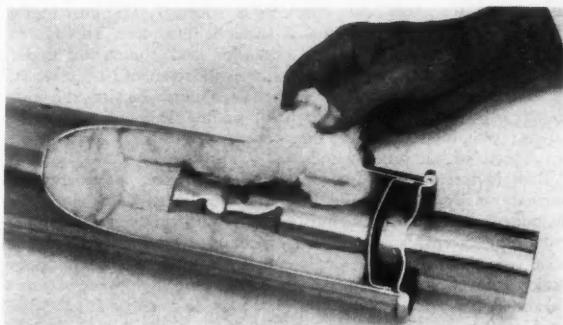


of the car in the hands of the original purchaser. Of course, when the car is sold, the guarantee is terminated.

After we secured a "Hush-Tone" muffler and cut it open for visual inspection, the muffler seemed sturdy. The outer tube and core are both 18-gauge, end caps are slightly thicker 16-gauge stock. Seams are joined by rolling and crimping, such as the junction of the end caps and outer tube, and the outer tube seam itself is rolled. Core and tailpipe sleeves are interference-fitted to the end caps, and electrically spot-welded into place. There is a resonance chamber designed into either end, inducing tone and providing expansion/contraction room for the core as it alternately heats and then cools.

The core is 16-gauge, seamed and perforated inward by scoops that form a spiral pattern through the 1½-inch inside-diameter core. Glass packing is two-ply: a thin layer of chopped-strand matting wrapped around the core, and a thick resilient layer that absorbs pulsations.

MOTOR TREND installed Fenton mufflers in a '57 Ford (with



T-Bird engine) that gets "stood on," produces hot exhaust—ideal for accelerating burn-out. After over six months, no noticeable deterioration has occurred, and noise level is still "as installed."

Fenton Mfg. Co.'s (3401 E. Pico Blvd., Los Angeles 23) suggested retail price for the glass-pack line, depending on year of car and model of muffler selected, ranges from \$7.95 to \$9.65.

This Fenton "Hush-Tone" muffler deserves MOTOR TREND'S Seal of Approval.

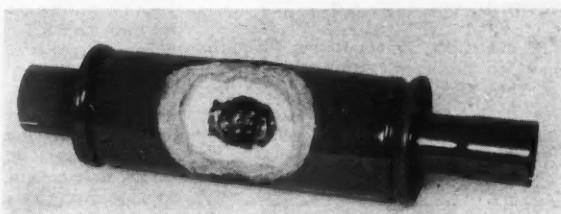
Goerlich Super G designed for high-powered cars



back-pressure-relieving techniques; probably also with an eye toward reducing unit costs.

Examining a cutaway of the Super G, we realized that Goerlich mufflers offer a good compromise among back pressure, noise level and price (suggested list \$7.15 to \$16, extra on certain special models). They also have some interesting design features.

First of these is the core—a full 1½-in. inside diameter—with their patented spiral. Goerlich's core design induces rotation in the exhaust column. In addition the core, with cleanly punched $\frac{3}{32}$ -in. holes, allows energy-laden gases to pulsate against four layers of glass. Two medium-density layers take direct contact; two less-dense layers act as backing. A resonance chamber at each end accentuates bass tones while the double-construction 18-gauge outer tube dampens the more offensive treble resonances.



Goerlich's Super G is well constructed, lasts a long time, and the prime design goals seem to be low back pressure. All mufflers are fully guaranteed to dealers for workmanship and material.

About six months ago, MOTOR TREND installed a Super G on the KaiSoto hybrid test car and we have given it varied use since. The muffler still shows no exterior deterioration, the noise level is exactly the same, and despite the big-bore V8, back pressure has never been a problem.

Goerlich mufflers of Toledo deserve the MOTOR TREND Seal of Approval.

continued

Use Tests | OF NEW PRODUCTS

continued

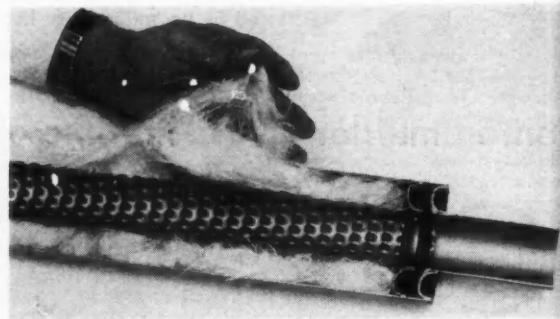
Mercer mufflers are sturdy, fully warranted



WHEN WE CUT a Mercer glass-pack muffler in half to be able to examine visually for soundness of construction and quality of material, the MT testing staff found the materials and production to be of high quality. The outside tube, the part exposed to water and rocks in normal road usage, is one-piece 16-gauge unseamed tubing. End caps are 14-gauge, slightly thicker, and are welded to the outer case and the tailpipe sleeves. The core is 16-gauge, 1 $\frac{1}{16}$ -inch inside diameter, perforated inward, and is wedged into place. This allows fore and aft movement during expansion and contraction under heating and cooling. There is also a small resonance chamber at either end, which affects the tone of the muffler. Packing is short-strand (about two-inch) glass fiber, packed loosely so that the exhaust pulsations can lose their energy against it, keeping the noise level within legal bounds.

Both Mercer and Hollywood Deep-Tone mufflers are guaranteed unconditionally and forever to the dealers who sell them. The guarantee covers blow-out, burn-out, rust-out, mechanical defect—everything except damage caused by abuse or road hazard (hitting rocks, etc.). This puts the replacement option in the hands of the dealer from whom you made the actual purchase. Manufacturer's suggested list prices within the glass-pack line range from \$8.50 to \$16.50.

Admittedly, a muffler is difficult to test, since the conditions



that cause its destruction vary with climate and driver's habits. We did, however, install Hollywood Deep-Tones on a '59 Pontiac and a '55 Buick. The installations were made about six months ago, and since then the cars have been subjected to five-day short runs and two-day hard runs every week. The noise level of the mufflers has not changed.

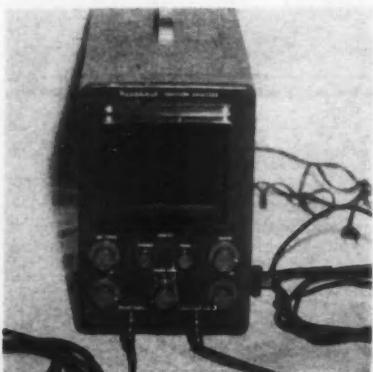
Both the Hollywood Deep-Tone and the Mercer mufflers, manufactured by Mercer Engineering Co., 7175 Eton Ave., Canoga Park, Calif., merit the MOTOR TREND Seal of Approval.

IN PAST ISSUES OF MOTOR TREND—prior to establishing our Seal of Approval—we reported on a number of new automotive items. We recently re-examined these products in terms of their current quality and advertising claims. Some of them failed to meet standards that would enable us to recommend them now; some are no longer available.

The following products have proven satisfactory in MOTOR TREND's Use Tests, and we are pleased to add their names to the list of those that have been awarded the MOTOR TREND Seal of Approval.

A neat do-it-yourself Heathkit ignition analyzer

THE HEATH CO., Benton Harbor 19, Mich., are past masters of electronic do-it-yourself kits. Their ignition analyzer is proof of their



versatility in marketing at low cost a normally high-cost item.

Equipped with only wire cutters, pliers, assorted screwdrivers, soldering iron and the instructions that accompany each kit, MT assembled the analyzer easily (Feb. '58).

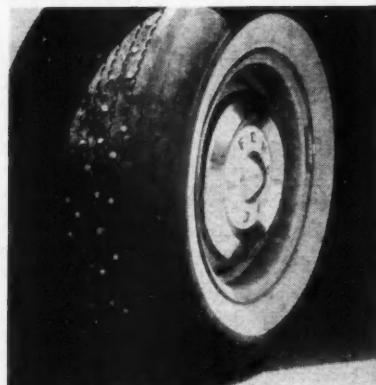
Since then, we've used it in our testing program, and have found it performs its function well. Once, for example, using it on a new car, we observed a discrepancy in the wave pattern that indicated distributor trouble. Since the car was new, we doubted the accuracy of the scope. Investigation showed the distributor shaft bushings were worn, causing the shaft and breaker-point cam to wobble—a condition unsuspected without the scope.

Awarded MOTOR TREND Seal of Approval

Security Tire Safety Seal withstands test of time

A TIRE LEAK PREVENTATIVE, made by Security Auto Tire Safety Seal, 1093 Broxton Ave., Los Angeles 24, contains an

inert sealing material and catalyst which form a permanent seal around punctures. Kit for \$10 services four tires. If the penetrating



object is withdrawn, the hole seals itself. The sealant will, however, freeze at about 8° F, requiring a mile or so of running heat to thaw.

When MOTOR TREND tested the product (June '58), we inserted a tube of seal, drove a four-inch spike into the tire, then withdrew it. Next, the tire was driven over a board studded with three-inch nails. No air was lost.

Testing as to permanency of the sealant, five months and 1700 miles later the same tire was brought back. Thirty-five nails were driven in and the tire road-driven. The nails were then withdrawn, and the tire driven over a board with five closely-spaced nails. Only a pound or two of air was lost before the seal had a chance to set.

The car was driven at high speed (95 mph) and it was determined that Safety Seal had no harmful effect upon balance.

Awarded MOTOR TREND Seal of Approval

Judson Supercharger kit helps Dauphine accelerate

WHEN A CAR BECOMES as popular as the Renault Dauphine, it's only natural for some people to want it to go faster, and for others to make it go. For a moderate \$165, Judson Research and Mfg. Co., Conshohocken, Pa., makes a supercharger kit,



consisting of all attachments and a positive displacement vane-type blower capable of about 6-psi boost on demand.

For our use test (Aug. '58) we went to Judson's home office and stepped into a cream-colored Dauphine, indistinguishable from any other except for the extra pulley than can be seen only from the rear. Here are the results of our comparison:

ACCELERATION

| MPH | Unsupercharged | Supercharged |
|------|----------------|--------------|
| 0-30 | 7.2 | 4.5 |
| 0-40 | 12.0 | 7.0 |
| 0-50 | 18.0 | 10.5 |
| 0-60 | 31.0 | 15.5 |
| 0-70 | 71.0 | 34.0 |

Awarded MOTOR TREND Seal of Approval

Wind-Stopper offers solution to back seat draft problems

IT'S PRETTY DRAFTY in the back seat of a modern passenger car, and hot-weather conversations are hard on the vocal cords.

A solution to the rear-seat air blast is offered by Wind-Stopper Co., 2680 Geary Blvd., San Francisco, Calif. Their Wind-Stopper is a distortion-free plexiglas supplementary window that mounts by two small clamps to the forward window channel. There are two models, sold for \$6.95 each, that



cover almost any late-model car, right side or left.

Our test car (Aug. '58) was a '55 Dodge, where family passengers had been shouting at each other for years. They were taken for a ride with windows in various open and closed positions. They agreed that Wind-Stoppers did the job their name implied.

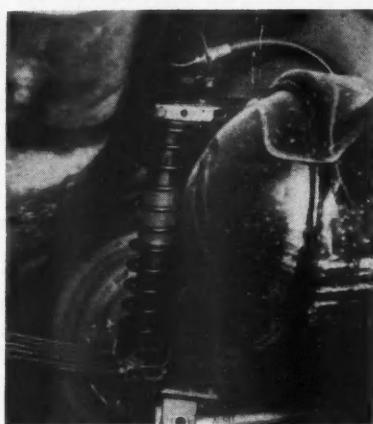
Awarded MOTOR TREND Seal of Approval

Loadomatic Shock-Springs eliminate overload bottoming

OVERLOADING CAN BE EXPENSIVE, and it certainly is miserable to drive an overloaded car because it handles so badly.

Superior Industries, 7260 Atoll Ave., North Hollywood, Calif., makes Loadomatic, a set of coil springs designed to fit around most shock absorbers currently in use. Price: \$15.50.

We loaded our test Ranchero (Sept. '58)



with bricks until it bottomed out on normal road bumps. We then installed Loadomatics, which took 30 minutes with hand tools and a jack, reloaded the Ranchero, and tried the same roads. The test car did not bottom and was more stable at the same speeds.

Awarded MOTOR TREND Seal of Approval

Electrotach and Radson tachs are accurate, easy to install

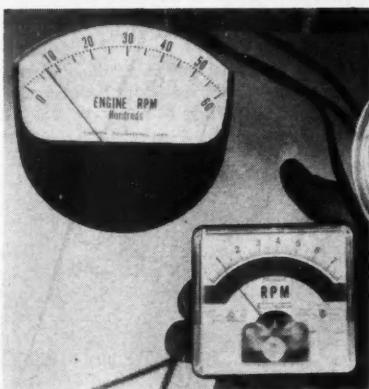
COUNTING THE PULSE BEAT of your engine is a simple matter with the Radson Model V-812 and Electrotach Model 30 that we tested (Sept. '58).

The Radson has a full easy-to-read scale, can be bracket-mounted from top or bottom, but must be grounded by the mount. It is a transistor-type meter requiring voltage sup-

plied by the car battery (12-volt system).

Electrotach's "dual-purpose" Model 30 has a magnetic base and is more a tune-up meter than a dash instrument, although it is also available with round dial and bracket for permanent mounting.

MT tested these against a sender-type Sun tachometer. The needles tacked evenly, were stable, and were well damped. There is, however, no provision for night illumination.



Dixson Products Co., Vashon, Wash., markets the Electrotach Model 30 for \$37.95; Radson Engineering Corp., Macon, Ill., quotes \$39.95 for the V-812.

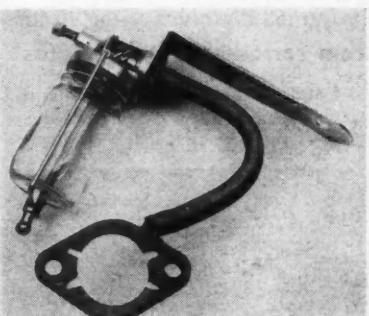
Awarded MOTOR TREND Seal of Approval

De Paolo Turbo-Injector atomizes top oil lubricant

UPPER CYLINDER AREAS of internal combustion engines are hard to lubricate, since so little oil gets that far up. Because of heat, carbon and varnish tend to form in the valve area.

De Paolo Engineering Co., Salinas, Calif., has developed an injector that uses engine vacuum to meter top oil into the intake manifold. They also developed a heat-resistant non-acid detergent oil to remove deposits and keep them from reforming in this critical area.

MT installed the Turbo-Injector on a



Pontiac Bonneville (Sept. '58), and thoroughly warmed the engine. Holding the oil supply valve wide open, and with a white card close to the exhaust pipe, we watched carbon and brown varnish come out the tail pipe and stain the card. After one bottle, the dirt stopped and the card stayed clean.

Injector and oil retail for \$12.95, and are available through Traction-Master Co., 2917 W. Olympic Blvd., Los Angeles 6.

Awarded MOTOR TREND Seal of Approval

continued

Use Tests

continued

Hickman Remote Circuit Control can serve as "third hand"

THE H. H. HICKMAN CO. of Portland, Ore., has come up with that extra hand sometimes needed to hold a flashlight or trip a starter button.



Testing the Remote Circuit Control (Oct. '58), MOTOR TREND chose a '57 T-Bird with a cramped engine compartment and a '58 Ranchero. After trying several hookups according to instructions, we started the engine without using the ignition key, intermittently turned the engine over to check valve lash and to take a dial reading from a cam, took compression tests, located the timing mark, and used the gauge as a flashlight at night.

Retailing at \$9.95, it's available at automotive suppliers and distributors.

Awarded MOTOR TREND Seal of Approval

Rydlyme dissolves lime, scale from corroded metal surfaces

LIME AND SCALE are some of the things that deposit on and clog radiator and engine passages. The lime is found in varying de-



grees in tap water—take a look at the shower head in the bathroom to see what it does.

Rydlyme, manufactured by Apex Engi-

neering Co., 75 E. Wacker Dr., Chicago 1, offers a solution to dissolve the deposits.

Before exposing an automobile radiator to an unknown chemical, MT submerged a well-clogged shower head in a 50 per cent solution (Nov. '58). Within minutes the lime and scale began to dissolve, and prolonged immersion did no apparent harm to the metal. It did, however, show holes that were there before, but were plugged by the deposits. We feel that Rydlyme, at \$2 per pint, is a safe cooling system cleaner.

Awarded MOTOR TREND Seal of Approval

Loctite offers effective solution to nut-bolt vibration problems

LOCTITE, a thermo-setting petroleum-base liquid plastic, locks nuts and bolts tightly with the application of a drop on the threads.

The manufacturer, American Sealants Co., 103 Woodbine St., Hartford 6, Conn., states Loctite will lock all except cadmium- and zinc-plated parts, and resists water, solvent, oil and heat.

MT tightened several bolts finger-tight (Oct. '58), applied a single drop of sealant, let it set for 12 hours, and needed wrenches



to loosen the threads. Further experimentation showed it to be effective within 45 minutes, and removal did not damage the threads. A single drop from the 65-cent tube resealed the union.

Awarded MOTOR TREND Seal of Approval

Dynomometer from England is small "G" meter

THE BOWMONK DYNOMETER requires no mechanical hookups, yet gives a wide range of acceleration and deceleration figures at a glance. Calibrated in percentage of "g" (acceleration or deceleration at the rate of 32.2 ft./sec./sec. (or approximately 22 mph/sec./sec.) the meter gives an accurate evaluation of braking efficiency, brake fade, tire adhesion on wet roads, etc.

On the performance end, it can tell the actual wheel horsepower at any speed, acting as a true evaluator of a tune-up. For the real enthusiast with a stick shift, it shows the best shifting points by indicating where acceleration actually falls off.



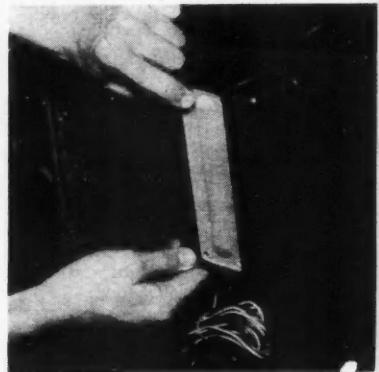
The true enthusiast will find as we did (Dec. '58) that Peduzzi International, P.O. Box 68, Huntington, N.Y., give \$22.95 worth of value received.

Awarded MOTOR TREND Seal of Approval

Electric window lifts install easily, operate efficiently

DEIGNED TO FIT ANY CAR with crank-type window handles, Windo-Lift can be installed in one hour. Motor and gear drive are housed in a plastic case that can be removed, if car is sold, without marring the door.

A set was installed in MT's KaiSoto test car (Nov. '58), is still operating in good order. Despite the high-friction window



mechanism, the buttons, with dual-control on the driver's side, close the windows easily and tightly.

Marketed by AMT Corp., 200 Briggs Blvd., Birmingham, Mich., they retail at \$34.50, with a suggested \$5 installation charge.

Awarded MOTOR TREND Seal of Approval

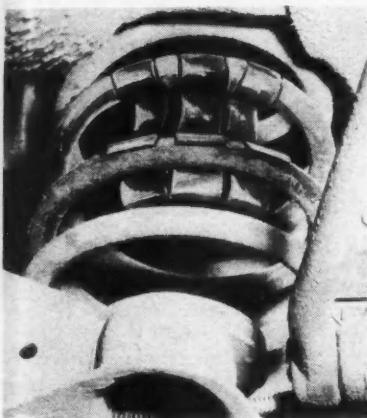
Coil-Rite clips restore life to sagging springs

AFTER YEARS AND MILES of constant flexing, coil springs get tired. When they get tired they sag; the front of the car dips and you ride with a rock and a roll.

Recently the Wright-Hall Co. of Santa Monica, Calif., have marketed the Coil-Rite

—simple clips formed of spring-steel stock. They fit between the coils, are held in place by compression, and reinforce the coils.

MOTOR TREND had five test cars—four with tired springs and a new T-Bird. The

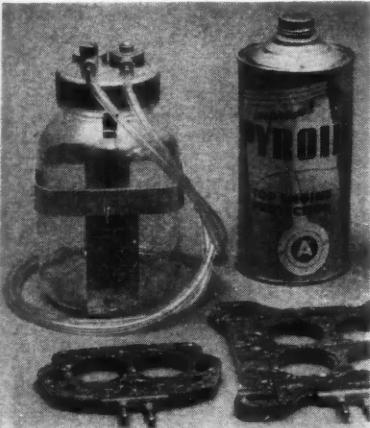


four oldies picked up their noses, refused to bottom out, and handled better; the new Bird felt a lot flatter in the turns.

Awarded MOTOR TREND Seal of Approval

Pyroil Impact Lubricator injects top-lube oil

A TOP OILER, by Pyroil Co., Inc., La Crosse, Wis., meters oil into the fuel/air stream at the point of its highest velocity through two tubes at the base of the carburetor. The oil atomizes the instant it hits the high-speed air stream—the higher the engine vacuum, the more oil admitted.



MOTOR TREND's test car (Nov. '58) was a '58 Pontiac with three two-barrel carbs, the oil injection unit set under the center or "running" carb. This car was new, and a few miles around town—assuredly no way to test a product that adds to a long life—did show a tendency for the stiff engine to run cooler and freer.

The Pyroil Co. has instructed its jobbers and dealers to refund in full to any customer who has used a full quart of top oil and is dissatisfied, giving the buyer, in effect, a free trial.

Awarded MOTOR TREND Seal of Approval

Formula D'Elegance gives concours finish easily

A TWO-SOLUTION CLEANER-WAX, marketed in plastic bottles by Mirror Glaze Distributors, 110 S. Euclid Ave., Pasadena, Calif., at \$4.35 for both, contains a synthetic crystal that becomes smooth under the slight heat of rubbing friction. It provides a fine abrasive guaranteed not to scratch the finish.

MOTOR TREND's test car (Dec. '58) was a Mercedes, maroon-colored, with streaks from drying in the sun after being washed



with improper soap. Gentle application of the cleaning solution removed the spots and streaks; the D'Elegance wax produced a glossy, highly polished finish.

Awarded MOTOR TREND Seal of Approval

Travel-Aire car cooler helps beat desert heat

WE HAVE FOUND a very satisfactory evaporative-type cooler, Firestone's Travel-Aire for \$49.95, that takes the edge off 100° summer heat. Drop legs place the unit over the driveshaft hump, and the only connection is a tap onto a hot electrical lead to power the fan. Fill the tank with approxi-



mately five gallons of water, open a fresh air vent to duct hot air over the cooler, crack a window as an air pressure bleed, and cool air flows through the car.

MOTOR TREND took a Travel-Aire-
continued

HEDMAN HEDDERS

for
STREET
or
FREEWAY

DRIVING

for
BUSINESS
or
PLEASURE

MOTOR TREND AWARDS SEAL OF APPROVAL

3.2 more



MILES PER GALLON

were obtained under ordinary street driving conditions.
More efficient gasoline usage means less smog-producing fumes.

FASTER ACCELERATION FOR TRAFFIC SAFETY

when you need that extra spurt of speed for passing or to avoid an accident.

Tests show 1½ second gain from 0 to 60 miles per hour.

BOLTS ON IN 30 MINUTES



The Largest Improvement for the Smallest Investment

SEE YOUR DEALER TODAY!
FOR FURTHER INFORMATION
Write for FREE CATALOG

HEDMAN
Muffler & Mfg. Co.
11039-49 W. Washington Blvd
Culver City 2, California

GERMAN MADE

Popular and precision built Opel Caravan gives you station wagon usefulness without bulk. Peppy performance with economy. Built with American big-car ideas.



AMERICAN STYLE

It has room aplenty for a family of five . . . and vacation gear, too. Or fold down the wide rear seat and get nearly 6 feet of flat cargo space for a $\frac{1}{2}$ -ton load!



THIS IS OPEL

Up to 30 miles per gallon. 56 horsepower, oversquare 4-cylinder engine. 174 in. long, 5'3" wide. Standard 3-speed shift. Opel Caravan station wagon, MANUFACTURER'S SUGGESTED RETAIL PRICE \$2292.60 P.O.E. New York*. Also available: Opel Rekord 2-door sedan.

*(Including heater, defroster, turn indicators, delivery, handling, Fed. excise taxes.) Transportation charges, state, local taxes, accessories and opt. equipment inc. whitewall tires additional.

THE BIG SMALL CAR BUILT IN GERMANY BY GENERAL MOTORS—SOLD AND SERVICED ALL OVER AMERICA BY

BUICK DEALERS

Use Tests

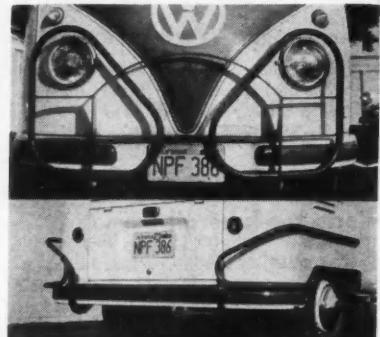
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equipped Dodge pickup across the 110° Mojave desert (Dec. '58), and the temperature stayed at a comfortable 80° inside. Awarded MOTOR TREND Seal of Approval

Hurst-Campbell guards bolt on easily, give VW protection

METROPOLITAN TRAFFIC demands protection of the highest order against those who park by ear. American cars are protected by huge bumpers; not so the imports.

Hurst-Campbell, Inc., 1511 Old York Rd., Abington, Pa., market a guard for



\$84.50 that gives high protection in front and a wrap-around bar at the rear. Hand tools are the only installation implements needed, and all parts fit perfectly. The guard bars tie into the frame.

Our test installation was on a staff VW Microbus (Jan. '59). We now have the feeling that should we become "involved," we will not come off second best.

Awarded MOTOR TREND Seal of Approval

Speed-Sport Oil for modern engines was Speedway tested

THE D-A LUBRICANT CO., INC., of Indianapolis have been specialists in oils and



greases for heavy industrial machinery for many years. Recently, they've turned their research facilities over to developing a special

continued on page 75

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A beefy British engine, 4 forward speeds and splendid traction make TRIUMPH a champion climber.

British TRIUMPH runs up hills... not bills...for San Francisco owner

**Costs \$1000 less to buy, \$350
a year less to operate than a
typical American sedan...yet
it's the "best engineered" of
all economy cars**

A new TRIUMPH owner from San Francisco writes:

"A car needs guts to get up our steep streets. Our TRIUMPH has plenty...far more than other economy cars we tried, and it saves more money to boot."

The TRIUMPH is a true economy car, all right. It costs only \$1699* at Port of Entry. You can count on up to 40 miles per gallon.

The engineering is even more spectacular. And no wonder! This car is made by Standard-Triumph of Coventry, England...the people who make the TRIUMPH TR-3 sports car ("1st in class" in practically every European rally for the past 5 years).

Here's what the 1959 TRIUMPH Sedan will do.

**Well over 70 m.p.h....up to
60,000 miles without major
overhaul**

Unlike many economy cars, the TRIUMPH has no trouble cruising at higher American highway speeds. It will do 65 all day with no strain on its quiet engine. It will travel up to 60,000 miles without a major overhaul—often 100,000.

The TRIUMPH performs beautifully under any conditions. The advanced front suspension system carries you smoothly over the roughest roads. The body, built as a unit with the chassis, takes any amount of hard treatment and stays rattle-free.

More head and leg room than American car

The TRIUMPH is only 12' 1" long—always easy to handle and park be-

cause there's no wasteful overhang. But inside you get 1 inch more front seat leg room and 3 inches more head room than in a typical American car.

Safety? The body is solid Sheffield steel. Visibility is excellent. And there are two leading brake shoes on each front wheel.

How to get a demonstration

There are now more than 700 TRIUMPH dealers in the U.S.—each with service and parts. Phone the one nearest you, and he'll drive the car right to your door for a demonstration. No obligation, of course. If you don't know his name, just drop a line to the TRIUMPH people at the address below. They'll make all the arrangements for you. But don't delay. You see, we can't describe the best part of all—the pleasure a TRIUMPH brings back to driving. That you must experience for yourself.



TRIUMPH

**Sedan \$1699*
Estate Wagon \$1899***

*At U.S. Ports of Entry, plus state and/or local taxes.
Slightly higher in West. White walls extra.



**TRIUMPH 5-door Estate Wagon. Same fine
engineering. Full 38 cu. ft. load space.**

Standard-Triumph Motor Company, Inc., Dept. DS-69, 1745 Broadway, N.Y. 19



DISGUISED

To all appearances the Mercedes-Benz 300d is an elegant automobile offering as much luxury as you'll ever find in any motor car. But disguised beneath its majestic mien is a plenitude of sporting qualities and engineering advances never before combined in a production car designed to transport people of quality. To wit: An overhead camshaft engine with fuel injection; a single-joint swing axle provides four-wheel independent suspension; immense finned brake drums; an auxiliary torsion bar suspension system for heavy loads; a one-shot lubrication system that virtually eliminates grease...it uses oil. The 300d can perform feats of roadability that in cars of equal size and lesser virtue would be feats of daring. And have you noticed, the 300d is a hardtop, the world's most elegant.

Mercedes-Benz Sales, Inc. (A subsidiary of Studebaker-Packard Corporation)



Use Tests

continued

automotive oil for modern high-speed high-performance engines.

They make no claims other than that their oil is good oily oil, has petroleum base, contains foam and high-temperature oxidation inhibitors, retains a high viscosity index without additives, and provides maximum film strength under severe conditions.

MOTOR TREND use-tested D-A oil in a Porsche 1600, a Mercedes 190-S and a Buick with hydraulic lifter problems (Jan. '59). Oil consumption was somewhat reduced, engines ran clean, and hydraulic lifters worked freely.

Awarded MOTOR TREND Seal of Approval

Dri-Powr additives clean and lubricate engines

THREE ITEMS designed to clean (and keep clean) gasoline engines are being merchandised by Dri-Powr Co. of Azusa, Calif. Dee-Gumm is an engine oil additive that sells for \$1.75; Dri-Powr is an oil and fuel additive selling for \$1.50; and a small 4-oz. can of Dri-Powr is available for 40¢.

Our test car was a '55 Dodge V8 (Jan. '59) with valve noise and rough idle. After



the full Dri-Powr treatment in both engine oil and gasoline, tappets quieted down, engine idled smoother and engine oil stayed obviously cleaner.

Awarded MOTOR TREND Seal of Approval

Ram-Cote renovates leather or plastic upholstery

HEAT AND SUN over the years dry out leather and take the snap out of plastic. Both become brittle and look dirty even when they're clean.

Ram-Cote Products, 1141 W. 69th St., Chicago 21, make reconditioners for either vinyl or leather.

We use-tested the leather reconditioner on a well-used test-car interior. First, we cleaned the surface and rubbed in the oil-like rejuvenator to replace some of the oils that had long since departed from the leather. We then applied a single coat of Ram-Cote by brush. This was adequate in our

continued

NEXT MONTH IN AUGUST

Sportscar GRAPHIC

On Sale JUNE 18 Watch
for it!

CARACCIOLA'S
GREATEST
RACING THRILL!

COULD THIS
BE PORSCHE'S
YEAR?

TWIN-CAM
MG:
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IT
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FREE!
SALE CATALOG
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any item from this ad
(otherwise send only 25¢
to cover mailing.)

**NEW GIANT
CATALOG**

Thousands upon thousands of 1959 accessories from our stock of over 150,000 items. Most available in regular Auto Parts Stores. Lowest prices in our history. Order your catalog today
SAVE NOW . . . ORDER THESE ITEMS TODAY

"AUTO-TIMER" Spark Selector. Get more POWER, up to 20% MORE gas mileage, quicker starting. Adjust spark instantly from your dash for all driving conditions. Triple chromed. Only \$6.95 postpaid. Great item.

NEUTRA-PLUG has Active-Magnesium to NEUTRALIZE acids. Alinco MAGNET traps abrasive particles. Doubles engine life, oil lasts longer. NEUTRA-PLUG only \$2.45. "Deluxe" Giant Model \$2.95 postpaid.

**POOROUS
BRONZE
OIL
FILTER**

"INSTANT-CHROME" plate anything. Sensational invention, gleaming surface easily applied to rusty bumpers, trim, plumbing fixtures, etc. No need to remove trim for replating. Only \$4.95 complete, postpaid.

**NEW
CHROME
KITS** \$4.95

MANIFOLDS
Offenhauser 53-59 Buick, ALL Cad, Olds, 6-Log (shown) \$74.50. Edelbrock 54-57 Ford, Merc, Dual-Triple (or 6-Carb) \$69.50. Weiand Chev V-8 Dual-Triple \$79.50. Carter 49-56 Cad, Olds, 4-Carb \$69.95

**ELECTRONIC
SPEED-ALARM** only \$6.95 ppd. Specifically 6-12 Volt SPEED-ALARM can save costly fines. Just set control knob to maximum speed you wish to observe. Red light flashes warning, no disturbing buzzer. SPEED-ALARM does NOT rob you of speed when you need it, is a "mental governor" that helps you drive within the law at all times. NO HOLES TO DRILL. Easily installed in 10 min. New low price \$6.95 postpaid.

**WORLD'S LARGEST SUPPLIER
OF SPECIAL AUTO PARTS**

Engine Adapters, Headers, Cams, Carburetors, Clutches, etc.

PLASTIC STEEL

plastic, 80% plastic, 20% steel handles into steel. Sticks to anything. For repairing pipes, faucets, lawn mowers, furniture, engine blocks, gas tanks, anything. Complete kit \$2.25 ppd.

TAYLOR ALTIMETER . . . great for trips . . . How "steep" the hills, how deep the valleys. Also Barometer. Complete . . . no wires to connect. 0-5000 ft. \$9.95; 0-10,000 or 0-15,000 ft. \$10.95 postpaid. Wonderful.

FABRIC COAT sprays on cleans, covers up, restores, preserves the beauty of your upholstery. Permanent, won't rub off or fade. Red, Brown, Tan, Rose, Maroon, Yellow, Greens, Blues, Grays, Black. 12-oz. can \$2.95 ppd.

NEWHOUSE GLASS-PACK MUFFLERS . . . Now only \$5.75 to \$8.65 FOR ALL CARS. Outlast THREE stock mufflers. Send \$2.00 deposit, balance C.O.D. Dash controlled "CUT-OUT" \$3.75. "BY-PASS" \$7.50.

GANE "Air-Jet" Needle STOPS GAS WASTE due to improper idle adjustment. Some get up to 6 extra miles per gallon. Try for 30 days, full refund if not amazed. Give model, year of car, make of carb. \$1.50 ppd.

AIRPLANE-TYPE "TRIPLE-FIRE" SPARK PLUGS give up to 30 more HP, greater mileage, faster acceleration. Outlast "old-style" plugs 3 to 1. New cooling fins, extra-rugged insulators, one-piece shell. \$1.19 each, set of 8 \$9.52 ppd.

NOISE FOR AIR-FLOW
WITH WITHOUT

MULTIPLE CARBURETION . . . **FOR TREMENDOUS POWER**

NEWHOUSE has Greatest Selection . . . **EVERY Famous Brand IN STOCK**

CARBS

Newhouse
AUTOMOTIVE INDUSTRIES
Burbank Available
WE SHIP ALL OVER THE WORLD

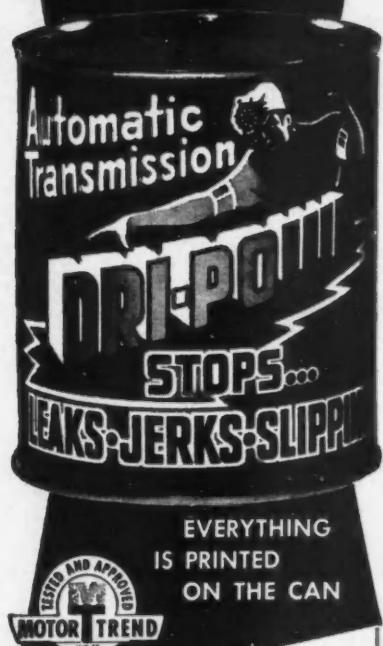
5005 E. Beverly Blvd., Dept. 151, Los Angeles 22, Calif. RA 3-3671
ORDER BY MAIL TODAY! Send currency, check or money order and save C.O.D. fees. 20% deposit required on C.O.D.'s (no C.O.D.'s outside U.S.A.). Calif. customers add 4% Sales Tax.
Car Make, Model . . . Year . . . Cyl.
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Quantity Item—Description—GIVE FULL INFO Price
BIG CATALOG—FREE with order (otherwise send 25¢ for postage).

FIX OR FIND

And that's a Fact!



DRI-POWR for
AUTOMATIC TRANSMISSIONS
does everything it says
it will do...



MOTOR TREND test report says:

Several staff members' cars were leaving spots of transmission oil in MOTOR TREND's parking lot, so we started treatment on several, including one that was really a heavy leaker. Two pints in each can stopped the leaks in those that were dropping small amounts of oil every few hours, but the badly leaking one left a red pool of oil—red because of the tell-tale dye incorporated in Dri-Powr to indicate if the leaks are coming from the treated transmission, or some other source. An honestly advertised product that works!

Available at Service Stations, Repair Shops, Garages throughout the U.S.A. and Canada

Excellent business opportunities for qualified distributors. Territories are available.
DRI-POWR CO., 735 No. Georgia St., Azusa, Calif.
I am interested in getting more information about becoming a Dri-Powr distributor. Please send me all the facts. I am under no obligation, of course.

Name _____
Address _____ Phone _____
City _____ Zone _____ State _____

Use Tests | OF NEW PRODUCTS

test car (Jan. '59), used by a stop-and-go in-town salesman. With a slight screw adjustment on the air bleed, his hot-weather hard-starting problems were far less acute. But make sure it's adaptable to your carb without drilling.

Awarded MOTOR TREND Seal of Approval

Fan-O-Matic lowers noise, reduces engine load at speed

ON-OFF FANS follow simple mechanical principles: the horsepower absorbed to turn the fan is in direct proportion to engine speed. If a friction pad arrangement, working like a centrifugal clutch in reverse, were to disengage the blade from the pulley



case. On bad upholstery, two coats may be needed, especially if repaired, but one restored our finish to a very satisfactory level.

For more information and prices, write to the manufacturer.

Awarded MOTOR TREND Seal of Approval

Carb-Airator controls air-to-fuel mixture on hot engines

ATINY THREADED BLOCK about one-third the size of a cigarette lighter is a good solution to rough idling of hot engines, where heat has transferred to the carburetor, causing a rich mixture. General Motors



(Rochester Products Div.) has developed a \$3.25 air bleed that increases the air proportion when the flange temperature reaches 140° F. A bi-metallic spring opens a flap-type valve, admitting air when it's needed and closing it off otherwise.

A 1957 Chevrolet six was MOTOR TREND'S

at low speed, the ram air would be sufficient to cool the engine. If rpm dropped, the clutches would engage again to turn the fan.

MOTOR TREND installed a Fan-O-Matic on a '56 Dodge Coronet (Mar. '58) and found that engine noise level dropped considerably. Driving in warm spring temperatures, engine ran uniformly a few degrees warmer. This seemed to aid combustion, as we realized about 18% increase in mpg.

There are, however, two things to consider. Tools and experience are recommended before installation. And, since on-off clutch is controlled by rpm, it requires an understanding of fundamental principles. For example, on a long, uphill low-gear pull, fan will be disengaged. But on the other hand, properly installed and understood, Fan-O-Matic (Radiator Specialty Co. of Charlotte, N.C.) is a worthwhile engine addition.

Awarded MOTOR TREND Seal of Approval.

LOOK FOR THESE PRODUCT TESTS NEXT MONTH

Products now undergoing test and which will be reported on in the July issue of MOTOR TREND include the following:

Mallory Dual-Point Ignition

D-A Lubricant for Competition Gearboxes

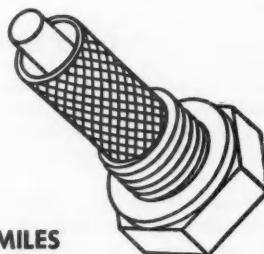
Hydraflex Brake Booster

Prestolite Battery

WANT TO SAVE MONEY OPERATING YOUR CAR?

**1,000,000 USERS SHOW YOU HOW
TO SAVE \$20-\$40-\$60 PER YEAR WITH**

- SLASHES OIL COSTS
- ADDS MONTHS TO SPARK PLUG LIFE
- KEEPS ENGINE YOUNG AND POWERFUL AS FAR AS 100,000 MILES



MAGNA-POWER
CRANKCASE DRAIN PLUG

WORLD'S BEST SELLER!

If you want to save money in operating your car, you can start today by installing a Magna-Power plug in place of the crankcase drain plug with which your car was originally equipped.

Magna-Power saves you money because it slows down engine wear. Unbelievable? And yet it's true! Over one million users have proved it true beyond any doubt, and so can you.

Magna-Power saves money for car owners in several important ways besides the slowing down of engine wear. (Which has done away with the normally inevitable need for new rings, valve jobs and overhauls for thousands and thousands of Magna-Power users.) In addition, your use of Magna-Power in your car must add months to spark plug life . . . it must keep oil usage to the lowest figure you have ever known . . . it must work to keep your engine operating smoothly, powerfully, and economically for longer than you could ever have believed . . . or your money will be refunded at any time you ask.

(NOTE: This unconditional and no-time-limit guarantee has been in force since the first Magna-Power plug was sold, ten years ago. Yet in all that time, less than 2 in every 1,000 Magna-Power users have ever asked for the refund which was promptly forthcoming.)



How much money will Magna-Power save you in operating your car? That amount will vary with each owner, depending on the economy your car is now giving you and the number of miles you drive in a year. If Magna-Power's use will double your spark plug life and keep your oil usage at present levels, or lower; then you alone can figure just how much that savings is worth to you on the basis of your average annual mileage. If Magna-Power's use will enable you to drive your car 50,000 to 70,000 miles with no other maintenance work than resetting points and cleaning and gapping spark plugs, you alone can determine how much you will be saving in terms of your past experience with engine wear.

One thing you can be sure of. Magna-Power will save you money, as it has for over one million car owners today, or your use of our product will have been at *our* risk, rather than yours. (And, frankly, we're not worrying over that possibility.) To those of you who are technically-minded,

or who still remember some of your high-school chemistry, we extend a cordial invitation to "plow through" the more technical words that follow. They are our explanation of the reasons why, improbable as it may seem, a simple substitution of crankcase drain plugs can bring you operating economy for your car beyond anything in your previous experience . . . plus your added pleasure in owning and driving a car whose operating condition will leave your more skeptical neighbor in open-mouthed envy. (We know, because we've seen it happen.) To those of you who are willing to take our word—and our guarantee—at this point, we extend an even more cordial invitation to fill in your name, address and car information on the coupon at the end of this advertisement, to send it to us with your remittance and to receive, in return, a Magna-Power plug for your car that is guaranteed to deliver you every last benefit promised above—and a lot of satisfaction, besides!

How Magna-Power Works To Reduce Engine Wear

Magna-Power is nothing more than a crankcase drain plug with one all-important addition—an attached bar of a unique* magnesium alloy which, when the Magna-Power plug is in place, is constantly washed by the

engine oil of your car's crankcase.

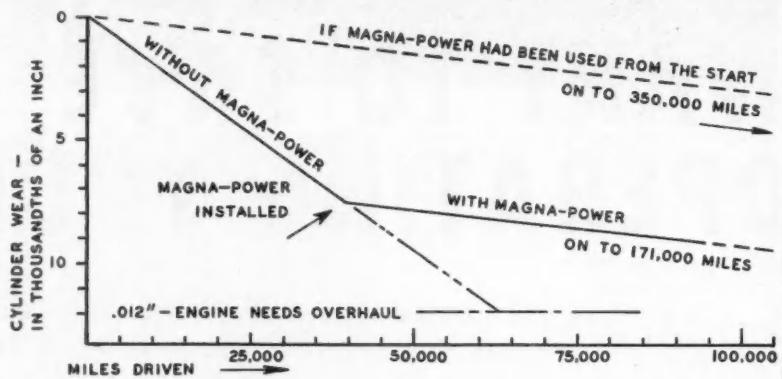
This bar of magnesium alloy is there for just one purpose. It attracts and invites the attack of metal-eating, sulphurous acids that are contained in all crankcase oil, and which otherwise would be free to invade and eat away metal surfaces in every critical area of your car's engine. It does this job superbly and efficiently because of the great attraction that magnesium has for such acids, as compared to other metals used in your car's engine. It isn't sufficient to use just any bar of magnesium, however. Otherwise, cars with magnesium oil pans would be benefited. It must be a scientifically balanced, chemically active magnesium alloy and it must be positioned at the drain plug area of the oil circulating system, where corrosive acids have their heaviest concentration. It leaves your engine untouched by factors that will ordinarily make your neighbor's car old in a year or two, while your car will continue to deliver power performance and economy beyond anything in your previous experience.

Simple idea? Yes, it is, like most of the barrier breaking ideas that really work! Today, almost all oil chemists and lubricating engineers are agreed that acid—not friction—is the top cause of engine wear. You see their beliefs demonstrated in a rash of additives in use by major national oil products. They're good additives, too. But like all other additives, they last just so long—and "so long" often means from just 300 to 400 miles for a top-quality oil that contains additives! Even if you change your engine oil every 2,000 miles (do you?) it means that crankcase acids are freely attacking your car's engine for at least $\frac{3}{4}$ of that time. Only your use of Magna-Power can retard acid corrosion in your car's engine for every mile you drive!

Will Magna-Power Wear Out?

Yes—eventually. After 75,000 to 100,000 miles, most owners who keep their cars that long have found it necessary to replace the Magna-Power plug. Until then, you can get optimum results from your Magna-Power by wire-brushing it (a "seconds-quick" job) whenever you call for an oil change. This removes the chemical deposits slowly built up by acid-attack on the magnesium alloy bar, and it leaves the entire surface area of the alloy free to work most effectively.

*Pat. Pending



WHAT DOES ENGINE WEAR COST YOU?

How would you like to be jolted by the cost of a rebuilt engine right now? This could run you \$200.00 or \$300.00 or even more. Not a pleasant thought but a distinct possibility.

Now you can save this money. Instead of having to plunk that cash down for this needless work, you can use it for that trip you've wanted to take or to help with those heavy school expenses. Let's see what happened to Tony DeBiase's Plymouth.

Tony lives right near here, in Dunellen, N.J. When his Plymouth already had over 38,200 miles on it, he put a Magna-Power in the crankcase. Three years later at over 68,200 miles the cylinder head gasket started to leak. When the head was removed, he found that the water had not caused any damage. Tony then had the cylinders measured by a qualified mechanic, a new head gasket put in and the engine buttoned up. It ran like a clock for another 20,000 miles. Then after some speeds of 80 and 85 miles per hour on a turnpike a piston ring broke. This time everyone was amazed. The engine

was almost completely clean—no sludge, no deposits. It was also almost the same size as before. The wear in 19,800 miles was about two-thirds of a thousandth of an inch. From these two wear measurements it was simple arithmetic to figure the rate of wear with the Magna-Power and then to figure what it had been before Magna-Power was put in. The best way to visualize this is make it into a diagram as shown above.

Saves Owner Over \$200—So Far

The Chart shows how Magna-Power at the lowest point in the engine, checks wear. This engine is STILL delivering top performance. It has now run off the scale at the right—it has over 105,000 miles. At the original wear rate it would have needed a complete rebuild at about 63,000 miles—normal for short trip driving. It has already saved Mr. DeBiase over \$200—in repair bills and is well on the way to repeating the same savings.

Lab Tests—What Do They Show?

Many of the older standard laboratory testing methods show no difference in neutralization number of oil with or without Magna-Power. Neutralization number is a technical term that measures the overall "acid" condition of the oil—including both strong acids and the harmless, "fatty" oils, which also have an acid effect on the testing chemical but not on the metal of the engine. This can be misleading. Ordinary bacon fat for example, will give a very high "neut" number, but it could not be considered as very corrosive.

However the difference is very clear with the newer oil testing methods which separate the "neutralization number" into strong, damaging, corrosive acids in one group and non-corrosive "fatty acids" (or "fatty oils") in the other. Reliable testing shows that Magna-Power reduces the corrosive group of acids by 60 to 70%. As a further benefit, it helps prevent the "fatty oils" from combining chemically to make engine varnish and sludge.

We have prepared a technical report on a new "fast aging" testing method and how it simulates field experience in the laboratory. We will be glad to send it to you. Ask for Report M-4.

JOHNS MFG. CO., Dept. M-6, Middlesex, N. J.

What About Those Who Do Not Agree?

Certain people claim to have run laboratory and road tests that seem to indicate that Magna-Power has doubtful value. These reports may have been made in all sincerity, but it should be pointed out that fast aging and laboratory engine tests such as reported in ROAD AND TRACK and other sources are meaningless unless they are definitely correlated to actual engine experience by extensive road tests.

This has been proven by the sad experiences of many of the leading oil companies. For instance, researchers at the Esso Standard Oil Co. of New Jersey, found by laboratory and engine testing that oil A was superior to either oils B or C. But when the oils were put into actual use in an experimental fleet, oil C which had shown up rather poorly in the laboratory, proved far superior to either of the others.

If the fast aging oven tests and the laboratory engine tests reported by ROAD AND TRACK, had been conducted using the well known conditions found in actual practice, and if the "neutralization numbers" had been reported separately as mineral acids and "fatty oils," an entirely different picture would have been presented.

We don't need to point out that this applies also to the "road test" reported where the testing built up the record with a colossal 1,500 miles—and then reporting only "neutralization number"! Surely this meager pittance cannot be successfully compared with the millions of test car and truck miles that have been accumulated under carefully supervised and controlled conditions. For example, a large and well known bakery products company is currently split-testing Magna-Power by operating some engines without Magna-Power and a corresponding number of engines with Magna-Power.

There are 22 engines used. At this time, it has been going for 18 months, in engines ranging from new or just rebuilt to those that were within a few thousand miles of needing overhaul. Many of the engines without Magna-Power have already worn so badly that they have had to be rebuilt. Already the Magna-Power has shown a 50% increase in engine life—and most of the engines with Magna-Power are still going strong! This test is corroborating the famous split test made by the Farmers and Consumers Dairy Co., where wear without Magna-Power was over four times as much as in engines with Magna-Power. This is the kind of testing that makes or breaks a product. This is the kind of testing you can have faith in, believe in.

Independent laboratory testing has shown that the Magna-Power reduced the strong, corrosive mineral acid of used engine oil by three to one or more. We will be glad to

send you a copy of this report. Just ask for Report (IL) 1821.

—And Those Who Do!

Rancher Holley Anderson of Twodot, Montana has had remarkably good service from his equipment. Here is what Mr. Anderson has to say, "I have used your drain plugs for years in all my equipment, which consists of five John Deere Tractors, two Chevrolet trucks, two Oldsmobile cars, and one John Deere Cat. One Olds, a 1939, has 245,000 miles on it. (Magna-Power was installed at about 100,000.) It has had one ring job and now after using Magna-Power it is using less oil at 1700 miles to the quart than it did at 20,000 miles. The 1941 John Deere H tractor stopped using oil after I started using Magna-Power, and the oil filter came out clean instead of a mass of goo. I would not consider using any engine without a Magna-Power. You may use this letter if you wish."

Thanks, Mr. Anderson! Magna-Power has saved this man hundreds and possibly even thousands of dollars. It can do the same for you.

Here's another one from John Doremus of Passaic, N.J. He says, "I installed a Magna-Power in my 1952 Ford six years ago. My gas mileage increased immediately. I was getting 13 miles on a gallon of high test. After Magna-Power, I got 19 miles per gallon on ordinary gas. The motor still purrs like a kitten, and even today after 61,000 miles it still uses only one quart to a thousand miles of driving." This is a great rec-

ord. Mr. Doremus has saved himself and future owners of the car, if he sells it, hundreds of dollars in repairs.

Direct Benefits Of Magna-Power

The direct benefits Magna-Power can give your car engine are these: It reduces wear on vital moving parts up to 80%; it increases engine power by eliminating sludge and resin formations; it slows the deposit build-up on spark plugs—promotes far longer plug life; it allows you to use your oil efficiently for over 3,000 miles before a change is necessary.

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We are so confident of our products that we are offering them to car owners on a money-back guarantee that has no strings attached, no conditions, no time limit! If our products don't do well for you, if you are not enthusiastic for them, send them back! Any time—years from now if you like! (But satisfaction is so great that our returns are but a small fraction of one percent!) Our products are available for most U.S. and imported cars, trucks and buses; marine, outboard, lawn mower and many other engines.

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Dept. M-6, Middlesex, N.J.

(Use Margin If Needed)

A Princeton, Ill., Chevrolet owner writes enthusiastically, "In 1954 I put one of the Magna-Power plugs in my new Chevy six. I now have 74,046 miles on it and it runs as good as new, with the same original spark plugs in it; the valves have never even been ground. It uses about a quart of oil in 1200 to 1400 miles depending on speed; of course, I use detergent oil. It still makes 19 miles to the gallon of gasoline and it is a power glide. Something has made this car run more miles than any I have ever owned before. Thanks for the information."

**Johns Mfg. Co. Dept. M-6
Middlesex, N. J.**

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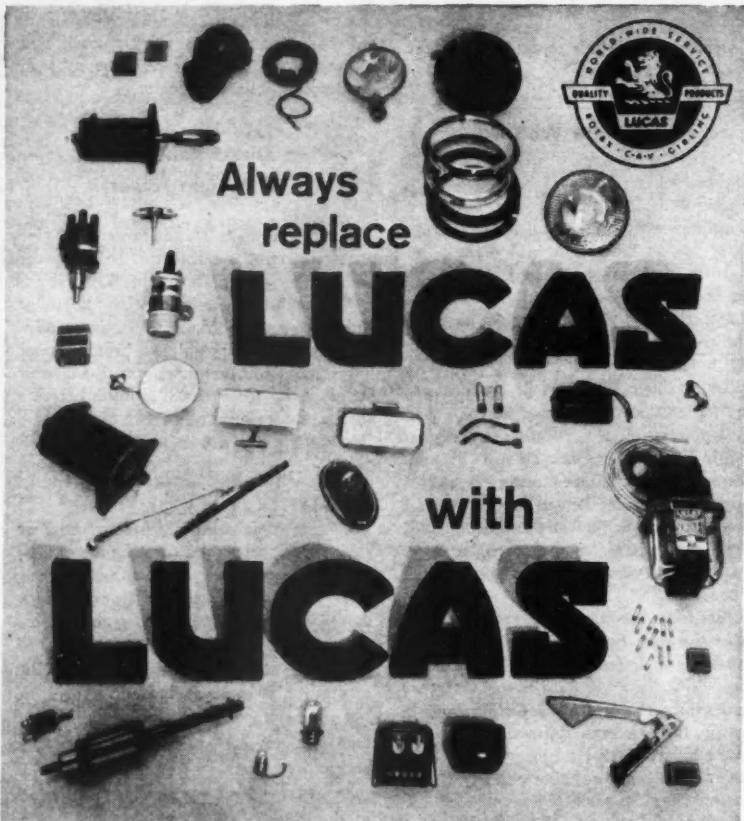
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Mobilgas Economy Run Winners

THE 23RD ANNUAL Mobilgas Economy Run, under supervision of the United States Auto Club, finished the longest run in its history. The 1898-mile course from Los Angeles to Kansas City, Mo., was covered by 47 cars in five days at an average speed of 41.12 mph, despite snow and ice conditions on the fourth leg between Denver and Lincoln, Neb.

For the first time in the Run's history, winners were calculated on a miles-per-gallon average, with no ton-miles or weight factors. Cars were divided into five classes according to cost and number of cylinders, plus a compact car division.

The only "smaller" cars made in the United States today, Rambler and Studebaker Lark, ran away with the top three overall averages. All entries, regardless of size, carried a driver, co-driver and two passengers. Women dominated some of the classes and Mary Davis of Hollywood lost a heartbreaking first place in the low-priced eight-cylinder class when her Plymouth Belvedere broke a tie rod on the last leg. Mary found a Plymouth dealer, secured a tie rod, and as per the rule book, made the repair herself. Despite a 38-minute delay, she pulled into Kansas City in time to take 2nd in her class.

All of the starters finished. There were no accidents, a few drivers drew penalties for crossing the center line and cutting corners, but there were no official protests.

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| Studebaker Lark Deluxe 6 | 22.44 |
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| LOW PRICED 6-CYL. | |
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| Chevrolet Biscayne | 22.38 |
| Mary Hauser, Hollywood, Calif. | |
| Chevrolet Biscayne | 21.94 |
| Gus Retzlaff, Phoenix, Ariz. | |
| Ford Custom 300 | 20.33 |
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| LOW PRICED 8-CYL. | |
|---------------------------------------|-------|
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| Pierce Venable, Redondo Beach, Calif. | |
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| Chrysler Saratoga | 19.07 |
| Mel Alsbury, Sr., Hollywood, Calif. | |
| DeSoto Firedome | 19.06 |
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present cable if in good shape, or re-use it even if the end has already been corroded away. Price: \$3.95 per set, postpaid.

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A top, with clear vinyl rear and side windows, is available from Marklane Mfg. Co., 8105 E. 39th Ave., Denver, Colo. It is furnished with all adapters, and the rear snap fasteners are the only mechanical alterations. Installation usually takes one hour.

Write to the manufacturer for the address of your nearest dealer.

THE HOPSCAK CHUKKA BOOT from Italy is a cool solution to hot-foot summer driving, or just plain lying around. Made of wheat-color hopsack material with soles of rubber-covered rope, they are available in male



gasket, a four-ounce can of exterior cleaner, and complete instructions. Kit will be marketed under the name "Kleanout" through GM service outlets at a suggested list price of \$2.95-\$4.95.

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—How veteran hot rod enthusiasts get more power. Covers such basics as the four-stroke engine cycle, cylinders, pistons, crankshafts, connecting rods, valves, camshafts and other engine fundamentals. The formula for increasing performance is also given and analyzed step-by-step. This chapter provides an invaluable checklist of primary facts.

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—Torque and horsepower are ratings of the performance ability of engines and, therefore, of relative acceleration and speed capabilities of the cars in which they are installed. The average hot rodder uses the terms torque and horsepower constantly, yet is often unable to define them. In this chapter, you will learn how they're determined, applied to your car.

• **GETTING MORE HORSEPOWER FROM YOUR ENGINE**

—Facts about boring and stroking (how to stroke a crank by the welding method), methods of production, stroker pistons and kits), porting—removing material from the walls of the intake and exhaust ports and passages, oversize valves, ground camshafts, valve springs (which strongly influence the way an engine runs), carburetion and the exhaust system.

• **YOUR ENGINE'S VALVES**

—None of the internal parts in a high-performance engine have an easy job, but it's doubtful if any of them work harder or under more difficult conditions than the valves. Here's how to disassemble, inspect, recondition, adjust. Full information on servicing valves for better breathing by improving the adverse conditions under which they operate.

• **THE COMPLETE STORY OF ENGINE CARBURETION**

—How to insure your engine's idling well and running smoothly with good torque output at low engine speeds. Single, dual, triple, quad carburetors.

ors. The problems of progressive linkage, maintenance and service for better starting, acceleration and economy. Also discusses special fuel pressure tanks, which give non-pulsating fuel flow.

• **YOUR ENGINE'S ELECTRICAL SYSTEM** — High-performance ignition, magnetos, distributors, coils, condensers, spark plugs, batteries, generators, regulators. How to get better performance through ignition conversions. Covers the various functions of the electrical system, with major emphasis on the job performed by the ignition system of firing the mixture in the cylinders at high pressure and RPM.

• **ENGINE BALANCING** — One of the most important steps in any engine rebuilding job is the complete rebalancing of the rotating and reciprocating parts of the engine's crankshaft and rod and piston assemblies. Here's how hot rodders who want top high performance go about putting the rotating parts of their engines in perfect balance. The step-by-step procedures as done by the experts.

• **FACTS ON HIGHER COMPRESSION** — One of an engine's most important features is its compression ratio, which has a definite influence on the torque and power an engine can develop. This section shows you how to get better performance through higher compression ratios. Of particular interest to hot rodders is the authoritative information given on high octane fuels.

• **THE PROS AND CONS OF FUEL INJECTION**

—The latest developments in the field of fuel injection systems. Power and economy aspects versus carburetor-type fuel systems. The two basic types of passenger car fuel injection systems under present development—constant-flow and timed injection. Includes the comprehensive report of General Motors engineers on their work on the GM-Rochester fuel injector.

• **SUPERCHARGING FOR INCREASED PERFORMANCE** — Supercharging is a method of hopping-up an engine by providing mechanical means to force greater quantities of fuel and air mixture into the engine's cylinders than the cylinder can induct normally. This chapter attempts to answer the question, "How much more power can you expect from supercharging?" Also discusses superchargers available.

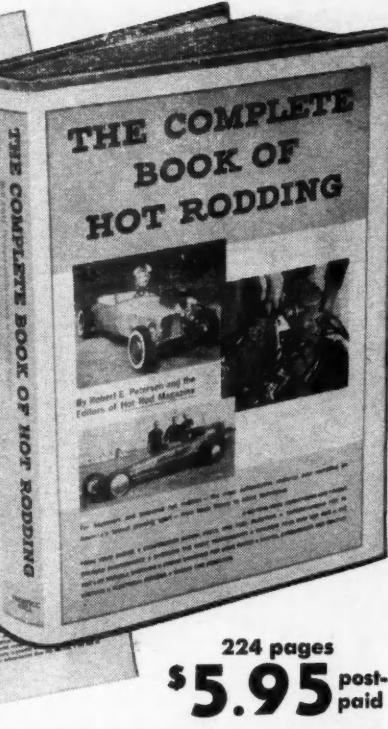
—Savings in time and money can be made by installing a bigger engine. But there are problems, including proper mounting and transmission hook-up. Given here are methods of installation which will help you surmount these difficulties. Swaps include shifting a '54 Cadillac Eldorado engine into a coupe built from '32-'34 Ford components, also Olds V8s in '49-'53 Fords.

• **CHOOSING THE RIGHT TRANSMISSION** — Discusses transmissions for the various types of cars used by hot rodders: a passenger car used for normal driving and drag racing, a passenger car used strictly for drag racing, a competition car used strictly for drag racing, a competition car used strictly for straightaway competition, etc.

• **BUILDING YOUR OWN HOT ROD** — Choosing the basic car, chassis, body, suspension modifications. Building for street or competition, or both. Examples of some of the best: Lincoln-powered roadster with 1929 Ford Model A body; '32 Ford with '55 Chevy V8 engine; the Glass Slipper, world record-holding Class C (183 to 305 cubic inches) dragster; Masters Dragliner.

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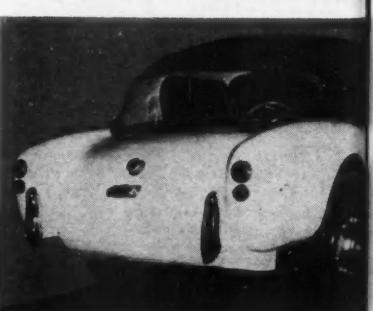
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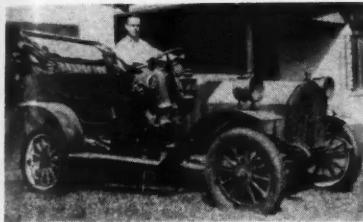
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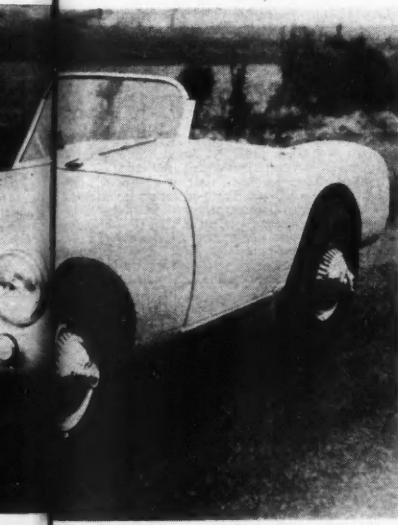
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continued on page 86

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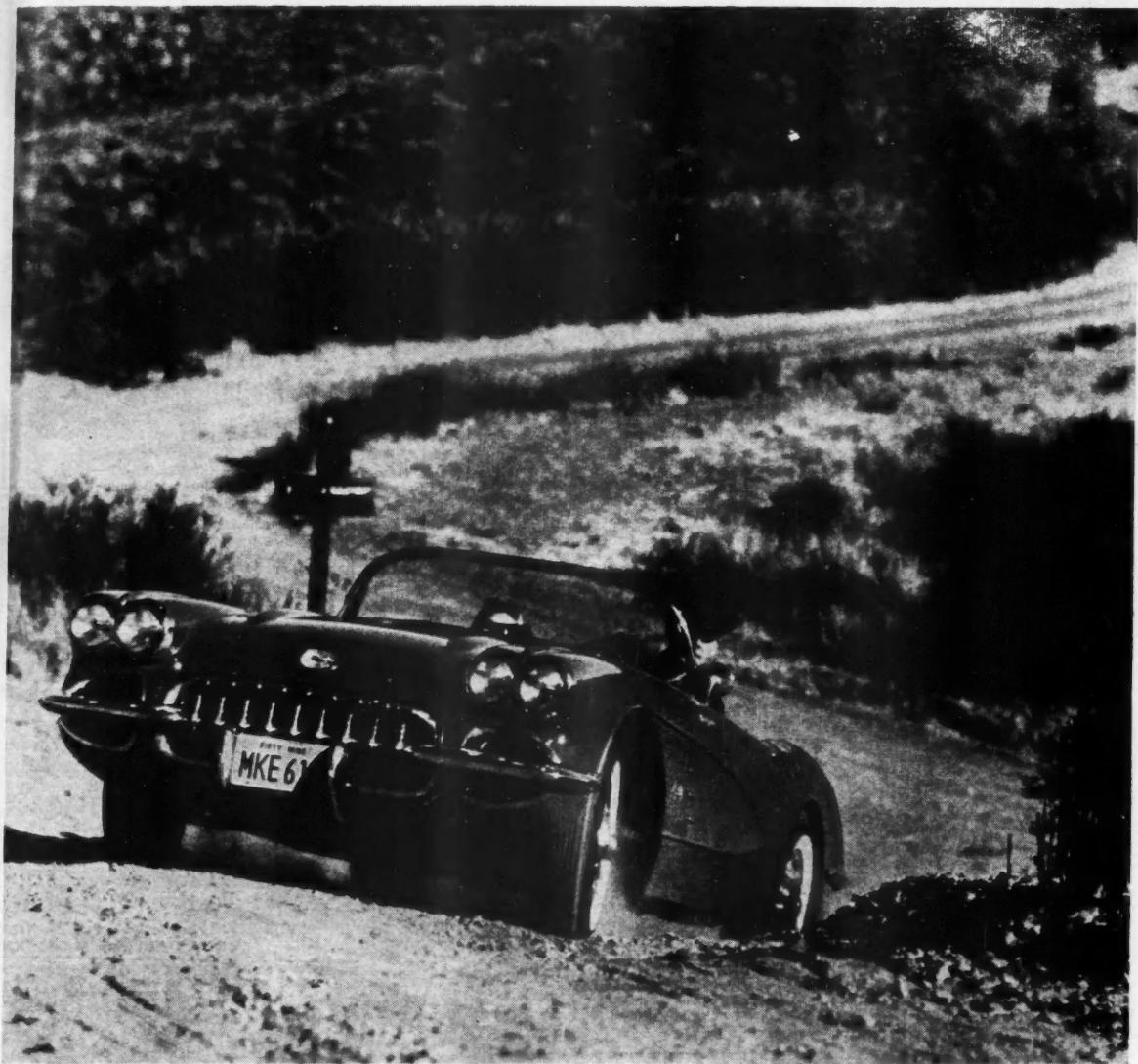
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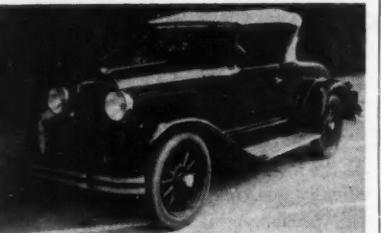
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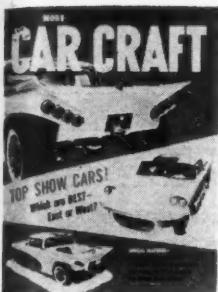
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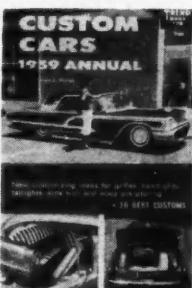
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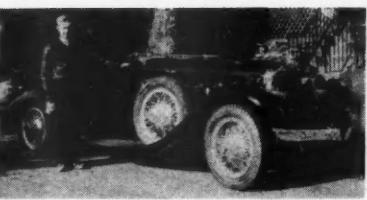
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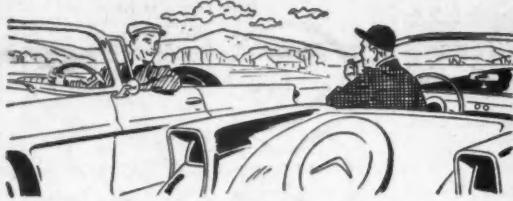


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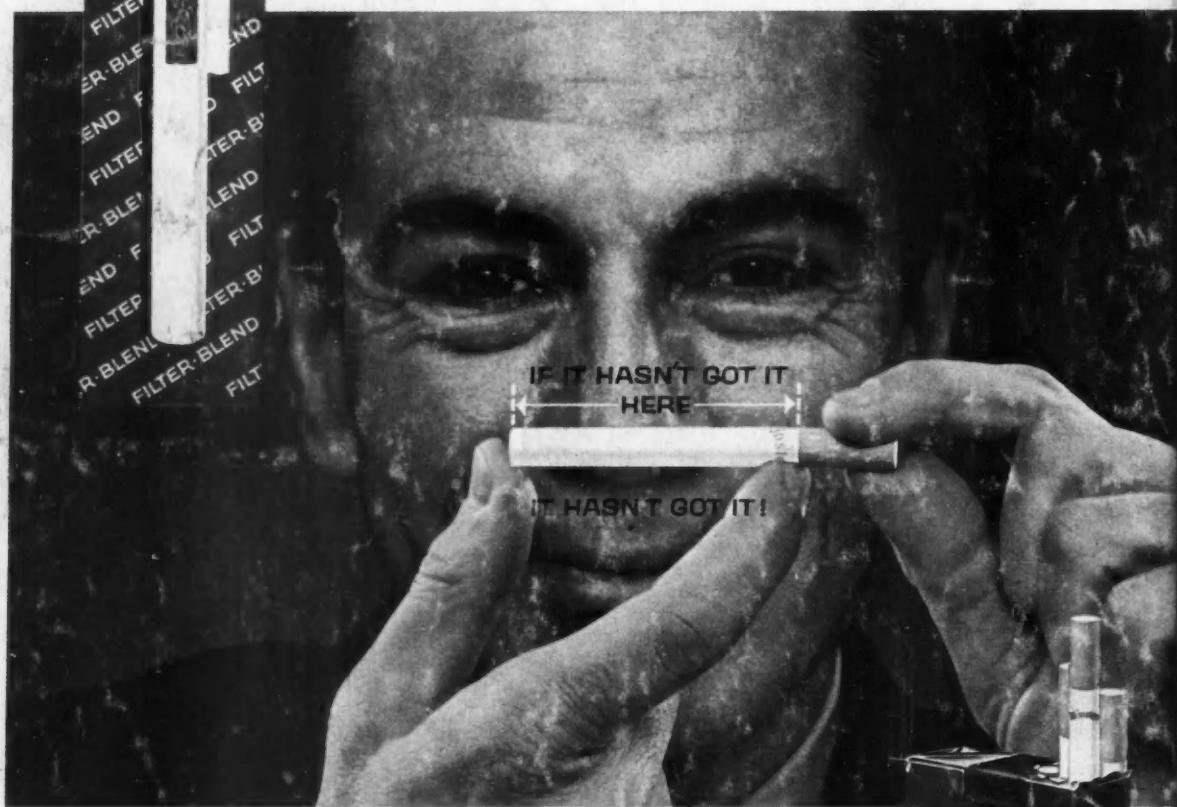


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